

1st Voted technology magazine of the year



THE BEST FULL WORKING **FREE** SOFTWARE FOR YOUR PC!

ONLY
\$6.95

atomic

MAXIMUM POWER COMPUTING

\$6.95

www.atomicmpc.com.au | Proudly Australian | Issue 45 | October 04

WORLD EXCLUSIVE

We reveal the Future of Gaming

The unbelievable new engine behind 3DMark05

GOVERNMENT COVERUP

Have we found Australia's weapons of mass destruction? **p34**

Battle for Middle Earth

The best real time strategy game ever made?

p64

Pixel Perfect

How Digital TV works

p30

HOW TO Firefox masterclass

Make the most of the web

p80

Plus

Robosapien
AMD Sempron 3100+
Gigabyte rocket cooler

NO CD?

Please ask your newsagent nicely

\$AUD6.95 Inc. GST \$NZ8.95 Inc. GST

(ajb.publishing)

ISSN 1444-8998



9 771444 899000

45

I wish

I'd never eaten those pills from amazeyourwife.com

I hadn't sent my bank account number



PC cases



power supplies



cooling & lighting products

to that Nigerian dictator

I hadn't hit 'Reply To All' when commenting on my boss' hairpiece



We'll help you build your dream computer.

What you do with it is up to you.

Antec
The Power of You



Australia / NZ Exclusive Distributor:

Sydney
Unit 37, Slough Business Park
Holker St, Silverwater, NSW 2128
Tel: (02) 9735 5655
Fax: (02) 9735 5656
sales-syd@altech.com.au
www.altech.com.au

Sub-Distributors:
SA Leader Computer Systems
(08) 8112 6000 www.leadersystems.com.au

NT Ikon Systems
(08) 8985 6233 sales@ikonsystems.com.au

Melbourne
Building 3, 13-15 Brough st,
Springvale VIC 3171
Tel: (03) 9558 5090
Fax: (03) 9558 5091
sales-mel@altech.com.au
www.altech.com.au

NZ Geeks Direct
+64 9 2777 815 www.geeksdirect.co.nz

Brisbane
64 Hope St,
South Brisbane, QLD 4101
Tel: (07) 3017 2000
Fax: (07) 3017 2020
sales-brn@altech.com.au
www.altech.com.au

Premium Resellers:

NSW AusPCMarket
ARC Computers
Plus Corp
VIC Scorpion Technology
CPL
QLD GameDude
Umart Online
TAS Tasmanian Principal Comp.
WA Austin Computers
Simline Solutions
SA Leader Computer Systems
Getright Computers

(02) 9748 8322
(02) 9898 3600
(03) 9561 8088
(03) 9542 8688
(07) 3387 1500
(07) 3369 3928
(03) 6234 5677
(08) 9201 2788
(08) 9446 3423
(08) 8112 6000
(08) 8231 0622

www.auspcmarket.com.au
www.arc.com.au
www.pluscorp.com.au
www.scorpion.com.au
www.cpl.net.au
www.gamedude.com.au
www.umat.com.au
www.tasmanianpc.com.au
www.austin.net.au
www.simline.com.au
www.leadersystems.com.au
www.getright.com.au

Contents

Issue 45
October 2004

Regulars

News 010
Hotbox of the year winner; SCO in trouble;
Atomic m33t 4.0.

Opinions
Ground Zero – The life of Ion 014
Fuzzy Logic – A game of Counter-Type 016
Z-Access – Tim is Doom struck 018

Gearbox 020
Hip. Cool. Nifty. Whatever. You'll find it all here.

Hotbox 024
Feed your hungry eyes with these super-hot boxes.

Futureproof 027
Mobile Bitboys madness and the fresh smell of the new OpenGL API.

Reviews 042
Framerate 044
AMD Sempron 3100+ 049
Gigabyte 3D Rocket Cooler Pro 051
Thermalright Thermalright XP-120 051
Active Cool AC4G-D 052

Spire PolarStream 052
Shuttle XPC SN95G5 055
Gigabyte GV-RX60X128V 055
Antec NeoPower 056
Robosapien 056
BenQ FP783 058
Creative Zen Touch 058

Games 060
Scanner 062
Engine room 064
Wings of War 069
Richard Burns Rally 069
Shellshock: Nam '67 070
Kohan II: Kings of War 070

I/O 072
Dan Rutter is a human toolkit. We have photos.

Windows tweaks 076
Simon Peppercorn knows things about Windows.

Linux tweaks 078
Peter Sbarski loves his Linux – and so do we.

Hackido: The browser, reloaded 080
Simon Peppercorn tames the power of Mozilla's mighty Firefox. Learn to browse in style!

Lost in Translation 089
Do you understand the words that are coming out of my mouth?

Fallout 090
Moz and Virtuoso deliver the funnies.



Competitions 084
Apparently, you can win things on this page.

Subscriptions 086
The magazine wants you as much as you want it.



feature

3DMark05 038

While buying newer, faster hardware lets you play the latest games, honestly – it's all about the benchmarks. It should come as no surprise that Futuremark is poised to release 3DMark05, the next iteration of its extensive and graphically impressive 3D benchmarking suite. We sent in James Wang to check out just how cool it will be.



021



020



x-ray Digital TV 030



064



027



056



070



080



012



024



head to head

Headcrabs versus facehuggers

034

Headcrabs... they're kind of scary. This is probably because they leap at you like crack-fed ninja cats, and, while they don't try and eat your face off, they do stick things into your head and take control of your body. Facehuggers, of *Alien* fame, do something similar... but it involves impregnation... which is kind of scary too.

Science can't explain everything – but pseudo-science sure as hell can. Professor Tim Dean attacks the head-grabbing wildlife with his tongue depressor.



090



Community at large

If there's one thing that most impresses me about *Atomic*; it's not the fantastic vision that saw its inception, it's not the truly talented staff members who have come together to produce it, and it's not the insightful and incisive style that makes *Atomic* so unique – no, what impresses me most of all is the community of people that choose to call *Atomic* home.

The community of *Atomic* readers isn't just a 'readership' by any stretch of inspired imagination. Many magazines can lay claim to a 'loyal' readership, but this depends on your definition of loyal. Publishing can be a variable and often amusing science, and the purchasing habits of the individual is more dependent on the value a publication offers month by month than any form of perceived longterm loyalty.

But not with *Atomic*. The community that has formed around it is like nothing I've ever seen – people so passionate about the magazine and what it represents that it becomes something almost identifiable with who they are, a part of their lifestyle, as much as anything else. While *Atomic* has, like other magazines, a portion of passing readers who pick up and read the mag intermittently it also has, unlike other magazines, an incredibly consistent and active body of readers, people who see *Atomic* not only as a magazine but as the centrepiece of a community of like-minded family and friends. It's a wonderful testament to the success of *Atomic*.

This is none more reflected than at the once a year *Atomic* meets, a social gathering organised for *Atomic* readers by *Atomic* readers, for which *Atomic* staff are just guests like everyone else. The fourth annual meet was held on 14 August, and was a fantastic opportunity for the community to mix and mingle, kindle new friendships, and generally celebrate what it is to be *Atomic*. If you missed out on the momentous event, you can see some photos on page 12.

It was fantastic to be able to meet in person the people who inspire us to keep creating this wonderful magazine and to get genuine feedback. There is no greater feeling than to know that our work is appreciated.

Atomic is built with, formed alongside of, and continues to grow through its community of readers. It's a part of *Atomic*, right to the core. It's the reason we have a level of content generated and written by members of the community each month – Windows Tweaks, Atomic submissions, Modjitsu and Hackido tutorials at times, and of course the official community page itself, Fallout (see page 90).

What other magazine in the world can claim such a passionate, active, and truly loyal readership? None. *Atomic* is unique and it's the community that makes it so. I take my hat off to you, our readers, without whom *Atomic* wouldn't be half as great as it is.

If you haven't so far voiced your thoughts online at www.atomicmpc.com.au, I encourage you to do so. Or email me at amills@atomicmpc.com.au. It's because you love reading *Atomic* that we love making it, so drop us a line.

Ashton Mills
Editor

Editorial

Editor: Ashton Mills amills@atomicmpc.com.au
 Technical Editor: John Gillooly jgillooly@atomicmpc.com.au
 Senior Writer: Logan Booker lbooker@atomicmpc.com.au
 Staff Writer: Nathan Davis ndavis@atomicmpc.com.au
 Senior Sub Editor: Melanie Farr mfarr@atomicmpc.com.au
 Sub Editor: Sarah Cooper scooper@atomicmpc.com.au

Design

Head Designer: Tim McPherson tmcpherson@atomicmpc.com.au
 Designers: Troy Coleman, Peter Shepherd, Jason Cupitt
 Product Photography: Chris Walsh

Contributors

Ben Mansill, Tim Dean, Simon Peppercom, Daniel Rutter, Craig Simms, Virtuoso, James Wang, Peter Sbarski, Maurice 'moz' Ford, Charlotte Mather, Dan Chiappini, Luke Gould

Production

Production Coordinator: Alison Maybury amaybury@atomicmpc.com.au
 Traffic Coordinator: Marissa McGarry mmcgarry@atomicmpc.com.au

Printed by PMP Print

Distributed by:

Network Distribution Company (02) 9282 8777
 Gordon & Gotch New Zealand (09) 625 3005

Advertising + Marketing

t + 61 2 8399 3611 f + 61 2 8399 3622
 Strategic Accounts Manager: Darren McNally dmcnally@atomicmpc.com.au
 National Advertising Manager: Jon Westnedge jwestnedge@atomicmpc.com.au
 Head of Marketing: Kate Imberti kimberti@atomicmpc.com.au
 Retail Marketing Manager: Emma McRobert emcrobert@atomicmpc.com.au
 Loyalty Marketing Manager: Lucia Cursio lcursio@atomicmpc.com.au

AJB Publishing

t + 61 2 8399 3611 f + 61 2 8399 3622
 PO Box 2286 Strawberry Hills, NSW 2012 Australia
 CEO: Adrian Jenkins ajenkins@atomicmpc.com.au
 General Manager: Simon Corbett scorbett@atomicmpc.com.au
 Head of Editorial: David Hutchins dhutchins@ajb.com.au

Subscription enquiries (including change of address)

Aust – t +61 2 9492 7399 f +61 2 9492 7310
 e subscriptions@atomicmpc.com.au
 NZ – t +64 9 625 3005 f +64 9 625 3006
 e subs@gordongotch.co.nz

Atomic: Maximum Power Computing is published monthly by AJB Publishing Pty Ltd. Company registered in Australia (ABN 76 951 889 503). This publication may not be reproduced or transmitted in any form in whole or in part without the written permission of the publisher.

Liability: While every care has been taken in the preparation of this magazine, the publisher cannot be held responsible for the accuracy of the information herein, or any consequence arising from it. Please note that all review judgements have been made in the context of equipment available to *Atomic* at time of review.

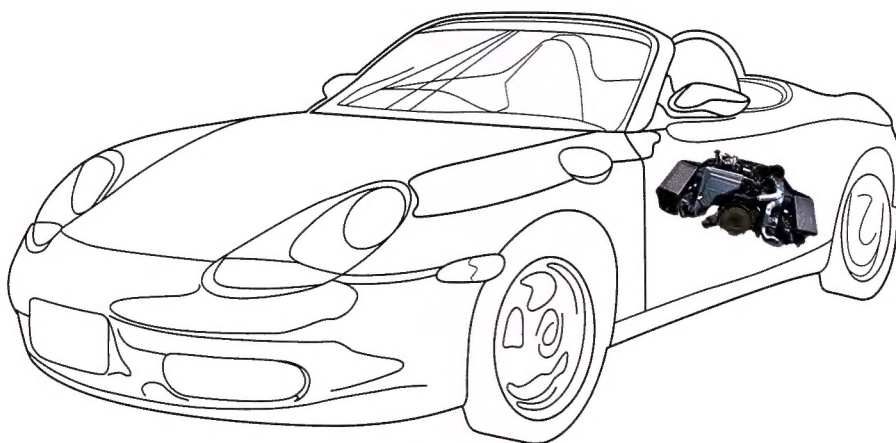
Editorial and product submission: *Atomic* welcomes all information on new and upgraded products and services for possible editorial coverage. However, we respectfully point out that the magazine is not obliged to either review or return unsolicited products. The Editor welcomes ideas for articles, preferably sent in outline form, with details of the author's background and a few samples of previously published work. We cannot accept responsibility for unsolicited copy and stress that it may take some time for a reply relating to these submissions to be sent out.

Atomic: All submissions must be the original work of the person submitting, and submitted works become the property of AJB Publishing.



April 2003 – March 2004:
29,498

ajb.publishing



FROM ONE HIGH POWERED ENGINE TO ANOTHER.



***Real Colour Management**



Before



After

***Adaptive Colour, Contrast Enhancement**



Before



After

Introducing LG's Flatron f-Engine. The world's first picture enhancing chip for LCD monitors. Using DAFI (Digital Adaptive Fine Image) technology which includes RCM* (Real colour management) and ACCE* (Adaptive Colour, Contrast Enhancement), the f-Engine delivers fine colour, fine images and a fine view to your LG LCD monitor. So start your f-Engines. lge.com.au

 **LG**
Life's Good

ALL YOU REALLY NEED TO TRANSFER AND SHARE FILES



Presentations

Business Documents

MPEG Videos

Photos

MP3 Music

Anything Digital



The Imation USB 2.0 Swivel Flash Drive is a compact and powerful flash device that features a "never loose" swivel cap.

- Transfer or share information with its plug and play format that allows you to drag and drop files.
- Available in capacities ranging from 128MB to 1GB.
- Downloadable software allows public/private drive partitioning and password privacy to protect your files from accidental erasure or unauthorised access.

For all your data storage requirements, you can rely on Imation.

www.imation.com.au



CDGuide

Super free CD

Super free – it's the key to this CD. As is rhyming! Along with the best open source has to offer, thanks to TheOpenCD.org (www.theopencd.org), we also have an awesome anti-virus software deal, generously provided by Kaspersky Labs (www.kaspersky.com).

THE NEWNESS

TheOpenCD

Easily the crown jewel of this month's CD is the open source content we've managed to stick on, courtesy of the fantastic lads at TheOpenCD.org. OpenOffice, Mozilla, Thunderbird and PuTTY await you in this coveted section. It's the best, free software available online, and you'll find none better. Along with the productivity software are audio tools, PDF utilities and games. Yes, games! Considering there's 300MB of software stuffed into this section, we have no doubt you'll be entertained for some time, or at least until the next CD.

Battle for Middle Earth

EA's Battle for Middle Earth is shaping up to be one of the best realtime strategies of recent times. Combining awesome new game mechanics, epic in-game cinematics and assets from Peter Jackson's movies, it may very well please both hardcore players and *Lord of the Rings* fans. Included on this month's CD is a short Quicktime file that explains how the cinematic sections of the game were done. Be sure to read this month's Engine Room, which covers the game's engine in detail. If you find this trailer to your liking, there's quite a few others available at the official Battle for Middle Earth website: www.eagames.com/official/lordoftherings/thebattleformiddleearth/us/home.jsp.

Kaspersky Anti-virus

You can never be too protected from the nastiness of viruses. Kaspersky has been nice enough to let us send out its excellent anti-virus package, complete with six months worth of free updates and support. In addition, if you decide to register the product in that time, you'll receive 30 percent off the subscription price. Be aware that this offer is only valid until 23 December 2004. So don't even think about dilly-dallying – do it, do it, DO it!

REGULARS

Compression tools

ZIP it, RAR it, ACE it – whatever. This section contains all the tools you need to compress, uncompress and make self-extracting executables out of your existing, or yet to exist, archives. Also included is the incredible, free compressor 7-Zip, which is, to put it simply, great for making big stuff small. Or small stuff big, all depending on your situation. It's got a bundle of hyperlinks, colourful boxes and oodles of information! Find out what we test with and how we test, and keep an eye on this section for more magazine-related content.

Magazine

All the content we just couldn't get into the magazine is here, in this section. At the moment, it contains the magnificent Atomic Benchmarks page, famous for providing up-to-date details on the hardware, software and magic dust we used to test the latest video cards, motherboards and CPUs this month.

Miscellaneous

We've grabbed the latest FileZilla and Firefox versions, and stuck them in this section like, well, programs that belong in this section. Sharing this nice warm spot is Adobe's excellent Acrobat Reader, fantastic for reading those nifty PDF files. And we all know what's inside PDF files – whitepapers and specs!

Boot sector

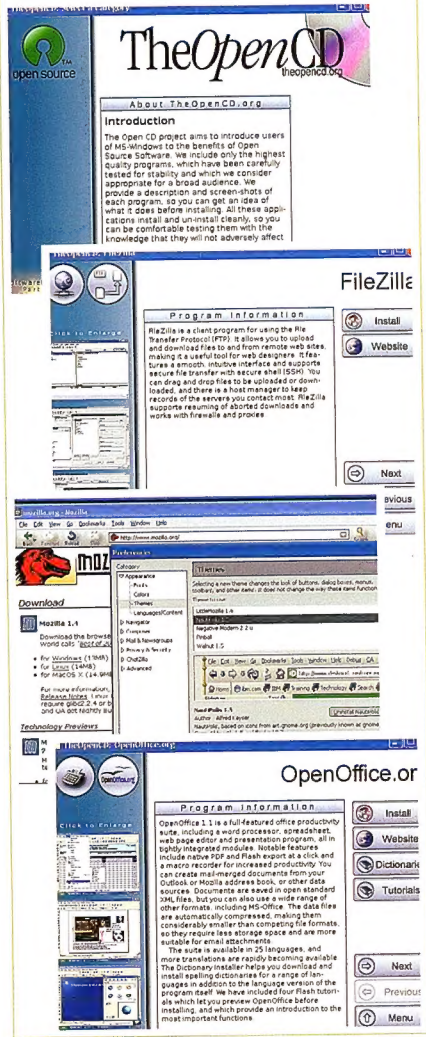
Keep your system plugging away with the newest versions of the top drivers, including ATI, NVIDIA, SiS, VIA and Intel. Recently updated are ATI's Catalyst drivers and Creative's Audigy 2 drivers. Fresh video and audio software, just so you can have things looking *and* sounding great!



WHY YOU WANT ME

- 300MB of free open source software
- Six months of virus updates and tech support with Kaspersky Anti-virus
- Sweet Battle for Middle Earth trailer

It's one heck of a CD this month, but we're always looking to make it better. If you have any ideas or suggestions for content you'd like to see on Atomic's cover disc, drop us an email at cd@atomicmpc.com.au. If we think it's great, then we'll stick it on. For now, enjoy this month's fantastic CD!





ShortCircuits

Canadian developer TransGaming Technologies has begun 'watermarking' its products in an attempt to cripple attempts to pirate its software, starting with Cedega, its Windows emulator for Linux. Cedega, formally WineX, allow users to play Windows games on the Linux platform. Copies of version 4.0.1 and onwards will be individually tagged each time a copy of the program is downloaded – specifically, 19 bytes in each archive are modified. These altered bytes have been causing many users trouble, particularly those who use MD5 checksums to verify the integrity of their files.

Jeffrey Lee Parson, that crazy 19-year old virus writer behind the -B variant of MSBlaster, has pleaded guilty to releasing the worm into the wild. Parson, who was arrested back in August 2003, will be sentenced in November this year, and could face 37 months in prison – if the judge is feeling particularly nasty.

Unfortunately last month our Head to head graphics card feature was attacked by the production gremlins and the specifications table contained the wrong information for the RADEON X800 XT Platinum Edition card. This Shader Model 2.0 card has 16 pixel pipelines and runs at 520MHz core, with 256MB of GDDR3 RAM at 1120MHz effective speed.

Microsoft's newly released Service Pack 2 contains two flaws, according to security site www.heise.de. The flaws, which relate to a caching issue with Windows Explorer and 'cmd.exe', allow files to be executed using cmd.exe regardless of their ZoneID – a special identifier that tells Windows what programs it can execute in a remote environment, such as over the internet. Microsoft has been quick to dismiss the problems as minor.

HotBOTY 2004!

Amazing. There's really no better word for it.

Hotbox of the Year 2004 has been a spectacular extravaganza of cool ideas and projects, a tight, fierce battle between super-sexy computer boxes, cut, trimmed and retro-fitted with water pumps, cathode tubes and fast fans.

In the end however, there can only be one. It's a tough competition, and only the most magnificent cases can make it into the spotlight.

That said, we'd like to heartily congratulate Felipe and his FX LAN BOX. Felipe managed to take first place by a measly three votes. Three! When we said it was close competition, we meant it.

Not only has Felipe won the respect of many, many modders, he's also bagged himself a beefy Athlon 64 system, complete with GeForce 6800 Ultra and nForce3 motherboard worth \$3000. This is all thanks to the top people at NVIDIA (www.nvidia.com), who we love immensely.

Well, that's all folks. Be sure to check out this month's current Hotbox competition at www.atomicmpc.com.au!



GPL is no go for SCO

The General Public License (GPL), used by most open source software providers to promote the free exchange and distribution of source code, may see its first stress test in court after IBM filed a suit against SCO Group in August, stating the company has 'without permission, copied code from 16 discrete packages of copyrighted source code written by IBM for Linux and distributed those copies as part of its own Linux products.'

The Memorandum goes on to say that 'although IBM's contributions to Linux are copyrighted, they are permitted to be copied, modified and distributed by others under the terms of the GNU General Public Licence. However, SCO has renounced, disclaimed and breached the GPL and therefore the GPL does not give SCO permission or a license to copy and distribute IBM's copyrighted works.'

The filing of this suit by IBM is quite timely; it's hard to believe that originally, SCO filed its first suit against IBM and not at random figureheads in the open source community (these were actually subpoenas anyway – requests to testify in court). It serves to remind many that although the fight seems to have propagated to users of, and contributors to, Linux – businesses and individuals alike – ultimately it will be the result of litigation between SCO and IBM that will determine the

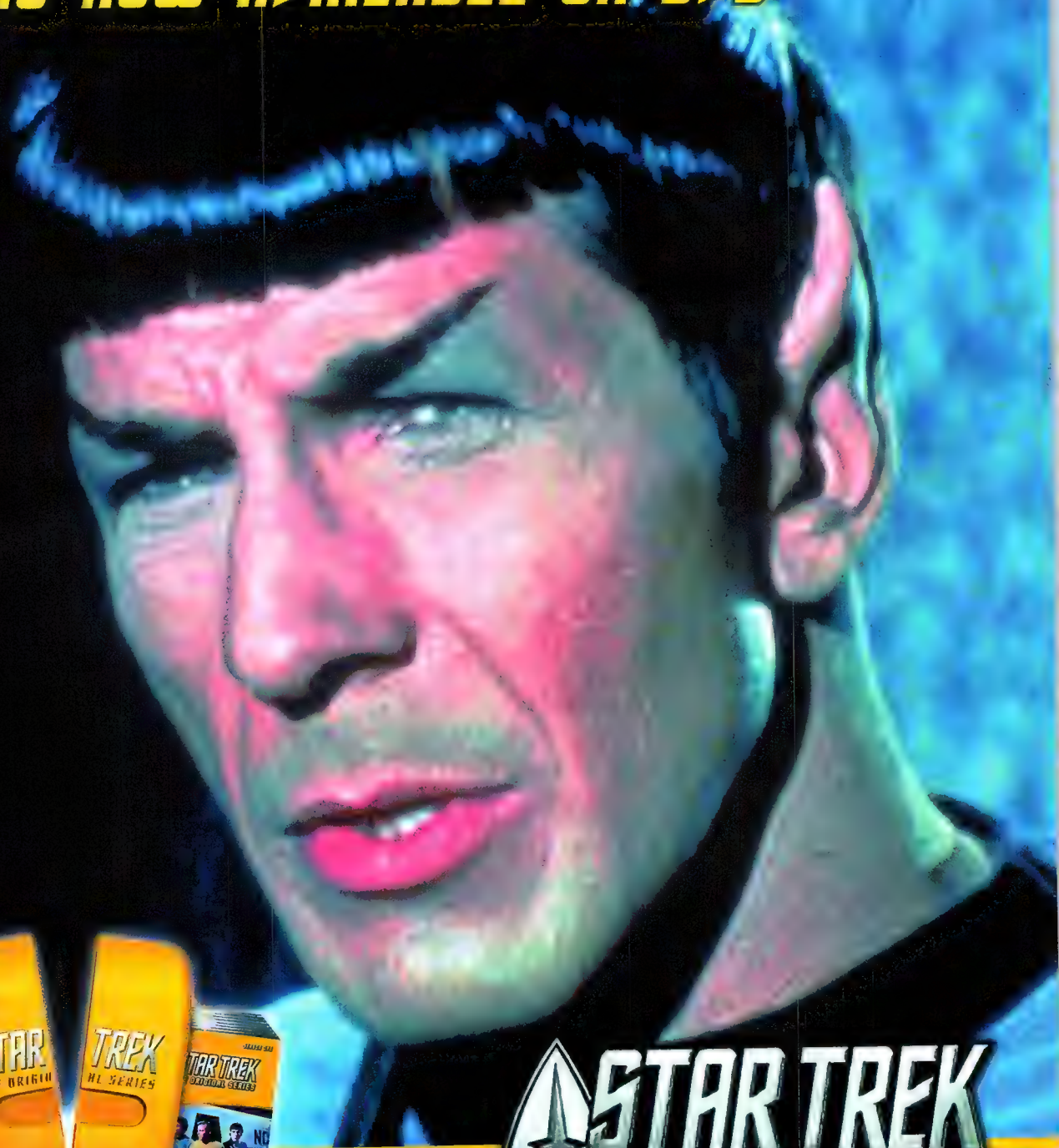
future of the free operating system. And foreshadowing this new suit from IBM is SCO's withdrawal in April this year of its suit against the GPL, in which it claimed the licence was unconstitutional.

This isn't the first time SCO has been set back. It has only itself to blame, as well as its inability to provide solid evidence of the copied source code. In the cases where it has complied and provided evidence, it's been shown that the code could easily have been copied from Linux to Unix.

SCO has been in a downward spiral for a number of months, posting loss after loss each quarter – its only profitable quarter being shortly after its first suit was filed. Unsurprisingly, the company's funds have been significantly drained by legal fees, and it's thanks to the likes of Microsoft that SCO is able to continue.

Now that IBM has thrown the GPL into the fray, the company will undoubtedly be looking to move in for the kill. But even if IBM does win out, the future isn't all bright – companies currently making use of SCO products and operating systems (of which there are many) will have little choice but to move to other platforms, unless SCO is acquired. It's unlikely that SCO will be able to support its products if it loses out in court without external help.

**THE 'MOTHER' OF ALL SCI FI SERIES
IS NOW AVAILABLE ON DVD**



PG Low Level Violence

SEASON ONE BEAMING INSTORE SEPTEMBER 9



TM, © & Copyright © 2004 by Paramount Pictures. All Rights Reserved.
Star Trek and related marks are trademarks of Paramount Pictures.



Sydney Atomic m33t 4.0

No other day this year will come close to the momentous magnificence of 14 August; no other day will match its tasty deliciousness or invigorating vitality. It surpasses Christmas, topples Easter and even conquers your aunt's birthday as truly the best, most enjoyable slice of time to permeate reality. In fact, it's impossible to pack enough hyperbole into the one sentence to describe just how super sweet it is.

Atomic m33ts have a tendency to be marvellous and fantastic, and 2004's was no exception.

Atomicans from all over the country made their way to Sports Central Bar at Fox Studios, Sydney, to celebrate the community and magazine, consume vast quantities of flammable and intoxicating liquids, and to have as much fun as was possible in the space of six hours.

Well, the space of eight – or 12 for some.

This year's m33t had by far the biggest turnout of Atomicans yet, with 50-plus people in attendance. How they all fitted in, no one knows, but they drank, played pool, drank some more and played more pool – a lucky few even stumbled! And, among the stumblers, pool players and hardcore drinkers were chatters, arm-wrestlers and, er, floor wrestlers.

Variety in spades and shovels.

The *Atomic* annual m33t is perhaps the greatest example of just how strong the bonds of friendship are between Atomicans – like-minded individuals with a deep, fiery passion for what they love. No matter the barriers – interstate trips, ravaging snow storms or faulty automobiles – they come, meet, gather and, most importantly of all, remember exactly what it means to be *Atomic*. Be it talking shop, discussing moonshine, or simply the superiority of one's mobile phone over that of their peers, the patronage of the *Atomic* community is a unique, flavoursome blend of everything good and funky.

For your viewing pleasure, we've included a few photos of this wonderful night below. More snapshots, along with vivid accounts and semi-comprehensible drunken recollections can be found at

www.atomicmpc.com.au/forums.asp?s=1&c=5&t=837&p=0

Till next year! 🍷



The apprenticeship that will take you places.

APPRENTICESHIP SPECIFICATIONS

NATIONALLY ACCREDITED QUALIFICATIONS

GUARANTEED JOB

GREAT PAY

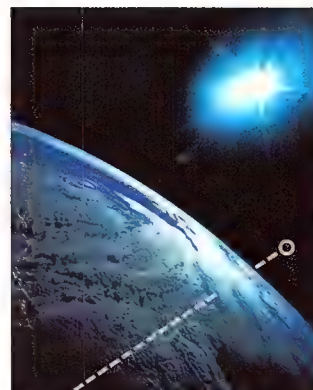
UNMATCHED BENEFITS

NO PRIOR EXPERIENCE

PROMOTION OPPORTUNITIES

TEAM ENVIRONMENT

The entire unit can be quickly deployed to areas of
extreme temperature
due to its robust construction.



The Parakeet features automatic satellite tracking capability.

Based on the Land Rover Defender, the Parakeet is an extremely mobile, modern electronic office communications suite which offers a range of features.

GUARANTEE

You'll receive nationally accredited qualifications and the guarantee of a job at the completion of your training.

You could earn up to
\$43,000 p.a. after 2 years.

Working in a team is a big part of Army life, particularly whilst on deployment in foreign countries.



ARMY TRADES

- | | |
|------------------------------|----------------------------|
| Aircraft Technician | *Fitter Armament |
| Avionics Technician | *Plumber |
| Aircraft Life Support Fitter | *Technician Electronic |
| Aircraft Structural Fitter | Telecommunications Systems |
| *Carpenter | Technician |
| *Electrical Technician | Telecommunications Systems |
| *Electrician | *Vehicle Mechanic |

*Qualified applicants may apply.

Nowhere else will you find the experience and job security that you'll enjoy in the Army.

Communications are vital to ensure Army commanders have the means to control information using radio, microwave and satellite links. In addition, high technology computer switched digital networks are rapidly becoming a reality. As a Telco in the Army it'll be your job to install, configure, maintain and just as importantly diagnose faults within the Army's telecommunications and information systems network. The job's diverse and interesting but above all you'll be receiving some of the best apprenticeship training. Training that's very much sought after in the civilian world.



You'll be paid a great wage while you train with a guaranteed job when you finish. You'll start on \$23,000p.a. and after 2 years you can earn up to \$43,000p.a. and even more as your career progresses.



You'll enjoy all sorts of benefits like free medical and dental, subsidised meals and accommodation.

ARMY
TRADE APPRENTICESHIPS

Call 13 19 01 or visit www.defencejobs.gov.au



Hatin' on Lithium-Ion

Daniel Rutter switches on to Litium-Ion batteries to reveal just how long they last.

Most of the key components of modern electronic devices – tough materials, electric motors, displays, sensors, integrated circuits – have improved out of sight in the last few decades. But batteries haven't.

If they had, we wouldn't still be driving cars with wet lead acid batteries under the bonnet, waiting to drip ghastly liquid on us as we lie pinned under our inverted vehicle in a ditch somewhere. I'm just saying.

But wait, you say. We do have better batteries. We have Lithium-Ion (Li-Ion)! And Lithium-Polymer! And they rock! They're small, they're light, they charge pretty fast, and they don't suffer from memory effect!

Ah, yes. Well. I'm afraid you need some... re-education. Come inside with me, where we can't be seen by the black helicopters.

I've ranted about memory effect before. Quite successfully, too; as I write this, I'm Google hit number one for that phrase, with or without quotes. But for now, I've another bone to pick with lithium-whatever rechargeable batteries.

Remember that iPod scandal from the end of 2003, when Casey and Van Neistat shot briefly to geeky fame with their claim that 'iPod's unreplaceable battery lasts only 18 months'? (If you don't, get yourself caught up at www.ipoddirtysecret.com)

Well, that particular rich-kid protest movement went down like a lead balloon (<http://homepage.mac.com/lchivers/stupid.html>) but the basic facts it was built on are valid. The iPod is like a lot of other little gadgets today in that its battery can't be replaced without taking it apart. And all iPods – old, new and Mini – use Lithium-Ion batteries.

Lithium-Ion has good energy density (compared with other battery technologies, not compared with, say, a piece of firewood). The current iPod batteries pack more than three watt-hours into a battery that weighs less than 17g; that's about double the energy density of the best AA NiMH cells. That's why Li-Ion (and Lithium-Polymer, which for

current cells is not much different) can be seen everywhere.

The Big Problem with Li-Ion, though, is that it's got less life expectancy than a Nexus Six replicant. Two years – three, at the outside.

Whether you use it hard or leave it on the shelf, there's a good chance a Li-Ion battery will be so degraded as to be pretty much useless after only a couple of years. And that's a couple of years after it's made, not a couple of years after you buy it.

That last part is a bit of a landmine, even if your gadget has a separate,

Fortunately, the limited lifespan of Li-Ion matches the ephemeral nature of most gadgets at the moment. Maybe, by the time we're all jacking into cyberspace to go shopping for new Zeiss eyes, many classes of gadget will have reached the same maturity currently enjoyed by wristwatches and handguns. By then, it will be perfectly reasonable to use high-tech items that were made decades ago.

Right now, though, a three year hard limit on battery life is not such a big deal. Even a two year old mobile phone or MP3 player isn't a very exciting product right now.

The iPod is like a lot of other gadgets today, in that its battery can't be replaced without taking it apart.

snap-in battery. If your battery dies of old age, and the manufacturer's moved on from that particular form factor of battery, and no third party manufacturer's selling new or freshly re-celled batteries to suit, you're probably screwed. There may well be 'new old stock' Li-Ion batteries in the original sealed packaging out there, but they'll all be useless.

Assembling your own Li-Ion batteries is not necessarily possible, even if you're comfortable with soldering other kinds of batteries together. Li-Ion packs often have internal electronics that keeps track of the battery condition; if you can't reset the battery condition firmware, new cells won't be seen as having any more capacity than the old ones. And the new cells had better be similar enough to the old ones that the charger doesn't make them misbehave. (Misbehaviour, for Li-Ion packs, often involves smoke.)

If you end up in this situation, you could hack up a NiMH pack and stick it on with Velcro. A nominal-3.7V Li-Ion cell can be successfully replaced by three 1.2V NiMH cells in series. But you'll need a new charger, and the whole operation is just a bit too Mad Max.

But, heck, the thing probably still works. If you're still perfectly happy with your two megapixel digital camera or 650MHz Pentium III laptop, you're going to be pretty honked off if it turns out to be impossible to get new batteries for it – and even more irritated if you buy a few dud 'new' batteries before you figure that out.

You young whippersnappers may not believe me, but I've got NiMH AAs here that I've been using hard for four years. They don't have anything like their original capacity left, but they're not weak enough to be useless yet. And modern sealed nickel cadmium cells were invented in 1947; they're pretty darn mature now, and very durable.

Everyone's still waiting for a really good portable power storage technology – fuel cells, anyone? In the meantime, we're stuck with lithium-whatever. But it pays to bear in mind that a widget running from humble AAs may not be as sexy, slim or generally as good-looking as a Li-Ion-powered version, but if some other major component of the device hasn't dropped dead three years from now, at least you'll still be able to get batteries for it.



On a budget? Well, don't look here! New Lian Li V Series Aluminium PC Case



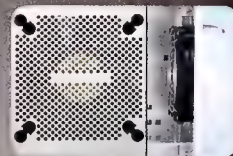
Perforated panels allow for improved ventilation



High quality stainless steel



5.25" bay converted to 3.5" bay with aluminium bezel (5 x 5.25" bays)



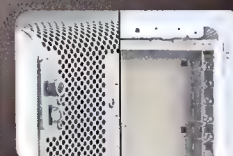
12cm ball-bearing fan with filter, removable sound damping cover and anti-vibration rubber ring in rear panel



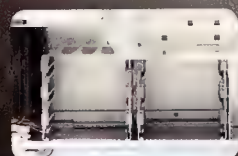
Separate power supply zone with holes for cables



Aluminium casters with brakes



Captive screws allow for easy removal of side panels



Sliding tracks for easy assembly of HDD (6 x 3.5" bays)



12cm ball bearing fan with filter and anti-vibration rubber ring in front panel



"...one of the standout cases on the market, with a price tag to match" (Atomic Magazine)

"...there is hardly a flaw to be found in the entire PC-V1000" (Tom's Hardware Review Site)

"Lian Li have always made cases that look great and don't rattle, but the V1000 takes it to a new level" (Dan's Data Review Site)



Zone 1

Rear 12 cm fan is located next to the CPU Cooler

Zone 2

Front 12cm fan is located next to the HDD

Zone 3

Power supply fan circulates cool air from the bottom of the case out through the rear panel

Anyware™ COMPUTER ACCESSORIES

www.anyware.com.au
www.anywarenz.co.nz

SYDNEY

TEL: 02-9879 5788
FAX: 02-9879 5388

MELBOURNE

TEL: 03-9763 8200
FAX: 03-9763 8400

PERTH

TEL: 08-9242 8588
FAX: 08-9242 8688

ADELAIDE

TEL: 08-8347 0488
FAX: 08-8347 0466

BRISBANE

TEL: 07-3856 3999
FAX: 07-3856 1777

AUCKLAND

TEL: 64-9-634 8088
FAX: 64-9-634 8078



Playtime is forever

The average gamer is 17, male and plays in a Counter-Strike clan. Ben Mansill and the Uni of Illinois beg to differ.

Astonishing news: games have hit the big time. Wow. Who saw that coming? I'm sure it's shocking news for you to know that 'games are bigger than movies' – being the tired old statement that's rolled out in the mainstream media every time a GTA-playing kid is brainwashed into axe-murdering a coven of religious cult prostitutes, or when Bruce Willis signs a deal for \$5,000,000 to record 10 lines of dialogue for a new action game, or when the Olsen twins get screwed over by Acclaim. Again.

A recent survey has shown that gaming has well and truly entered the everyday life of the average Joe. It has overtaken TV as the primary source of home entertainment for most families, and, perhaps most surprising of all, is that the average gamer is someone rapidly approaching their early thirties.

The survey ('Internet and American Life'), conducted by the University of Illinois, is the latest in a string of studies which is blowing away the cobwebs of misconception about games, and who plays them. Increasingly, the mainstream media has a starkly tenuous grip on the stereotype it likes to portray as the 'gamer'. But equally powerfully, the shift in the gaming demographic means we 'true' gamers must reassess how we see ourselves. We may have enjoyed the stereotype, or we may have despised it, regardless, the 'gamer' – if there is indeed such a thing anymore – is now the everyman.

Gaming used to be ours alone. It was our exclusive and private escape from the *real world*. We cared little that gaming was scorned by *real people* with *real lives*. Call us names. Stereotype us. Try and tell us that gaming is a waste of time. Tell us that while you're watching *Neighbours* and downing a six-pack. Go nuts. We've never cared. Good luck to you and your wonderful life.

Apparently real people don't play games. Nu-up. Real people go to the movies and real people watch TV. They go clubbing. They go and get smashed and see a band. They play soccer on Saturday morning. Kids play games, see. Loser kids who will undoubtedly amount to nothing.

Real people don't understand games. They never have time to play them. They can't get into games. They aren't sure how they work and aren't inclined to find out. They might get a PlayStation 2. Or maybe an Xbox. What's the difference anyway? They might ask someone who knows, if they get a chance. Which they won't.

That's how it all is, isn't it?

Well, guess what? Gamers have always done the real things real people do, but who cared about that when there's a juicy stereotype ripe for ridiculing? What's been constantly overlooked is that real people play games too.

Technics Mars Rover when they could be using their *imagination* by creatively decapitating Puerto Ricans with a chainsaw in GTA Vice City? Right on.

Teens like fantasy escapism. They need it. I sure as hell know I did, as the pressure years of school and adult reality hit. And nothing – nothing legal anyway – takes one's mind away from the real world like gaming.

There's no denying that the lifestyle campaigns from Sony and Microsoft have hauled in many grown-ups who may be new to gaming, and entering that phase of their lives where they're home more

Apparently real people don't play games. They go clubbing. They go and get smashed and see a band. They play soccer on Saturday morning. That's how it all is, isn't it?

Given the whole 'nerd' stereotype that emerged and stuck like baby poo to a blanket during the '80s and '90s, it's almost possible to forgive the mainstream media for keeping alive this sub-culture stereotype. All kids have to belong to a particular sub-culture, unless they're *normal*. That's how the current affairs shows like it. The myth allows them to dish out the derision when they feel like it, or need to. The myth also conveniently shields people who are really too thick to figure out how to use a computer, even for just playing a game, from confronting their own stupidity. After all, only nerds understand computers, and nerds aren't normal.

Not anymore. Our surreptitiously conducted, subversively cloaked little secret thing is now standing proud in the real world, where real people do real things. Who are these real people though? It's not the socially challenged 18-year-old male as legend has it, that's for sure.

Kids love games. We all know that. What's not to love about gaming if you're a kid? Pretty colours and shapes, dancing across the screen, mesmerising baby better than any Fisher Price plastic thing. Why would any kid waste valuable childhood time following the instructions to build a rigidly pre-engineered Lego

than out and about. But gaming has been growing exponentially since the early 1980s, and the original gamers haven't grown out of their pastime to be replaced by new young gamers signing up for their tenure as some may have expected. As gaming picked up new recruits through the '90s, they stuck with it. And they're in their thirties and forties now.

The Illinois survey showed that 35 percent of Americans cited gaming as their preferred 'media entertainment activity'. Only 18 percent nominated television. Most remarkably, the survey showed that the average age of the gamer has increased by 10 years in the last five years.

Despite the vast hordes of younger people playing games, the average age is 29 and climbing fast. It takes a hell of a lot of older people to skew a survey average to that extent. A hell of a lot of *real people* living normal lives, playing games for fun.

The stereotypical gamer no longer exists. He has been replaced by broader society itself, and all the stereotypical sub-cultures that exist within it.

Personally, I preferred feeling special, in the old days. Feeling accepted isn't such a bad substitute though.



Diamond Digital

Leader in Quality, Technology and Performance

- A brand name users can trust
- Excellent warranty and service
- Innovative products with latest technology and style

To view our extensive range of product visit
www.MitsubishiElectric.com.au



FORMATION DISPLAYS

Life Video
reproduction
Only Faroudja
16 ms response time



LCD MONITORS

Available in 15" and 17" sizes
Perfect for desktop
and portable use
Energy efficient
Low heat output



CRT MONITORS

Best price /
performance ratio
Aperture grille and
shadow mask models
Free of monitor
electromagnetic fields



WIRELESS NETWORKING

Wireless networking
expansion of your
desktop or laptop PC
Freedom of building
Internet connection
anywhere
Compact size
Easy to install
Simple to use



HUMAN INTERFACE DEVICES

Wired and wireless
Sleek ergonomic design
5 year warranty

Doomed

Never has a remake been such a remake. Tim Dean thinks it's a pity it didn't innovate on the gameplay, but loves the bump mapping.



I reckon PC gaming is now like watching toasters. For as soon as you give up hope of seeing anything new emerge from the grey-walled enclaves of corporate games publishers, they throw your world into chaos by actually releasing something of note.

I gave up chasing release dates for various big name games long ago. In fact, it was probably some time around 23 September last year. From that date onward, I could no longer hold the flood gates against my barely controlled cynicism towards game publishers.

Anyway, I have been trying very hard to ignore all the feverous exclamations of release dates and such, so I was only *thoroughly* prepared for the plonking of a review copy of Doom 3 on my desk – instead of being so oversaturated with preparedness that I was already over it. Still, even that hasn't helped terribly much.

Before I go on, it's probably worth me pointing out that while I enjoyed the original Doooms, I didn't gush with love for them. I admit they were cool, and had a definite measure of mindless fun about them, but even then I felt they were more a yardstick for other developers to use to make even better games – and not much has really changed when it comes to id's development strategy.

Mr Carmack has vehemently stressed that he was coding for Doom 3, and not for an engine that was just going to be flogged off to other developers. Still, while that may be the case on the day to day decision making level, it's clear that id has put a lot more attention into the tech than it has in either the plot or gameplay.

I know, Doom 3 is an unapologetic remake of the originals, but therein lies the issue for me. Why remake something that has been superseded many times over already? Think of it this way: you'd be surprised if they remade the Doom 2 engine for Doom 3. So why aren't we surprised that they've remade the same old gameplay?

id has spent a considerable amount of effort in the innovation department, but this has all been directed at the engine. In this respect I can comfortably say the Doom 3 engine is the best I've ever seen. Not only does it have all the latest graphical features being put to good use, but it also runs at a decent speed on a variety of hardware. Furthermore, it has that special 'id' (or should I say Carmack) tangibility that makes it feel solid and responsive. The only way I can describe

Interestingly, if you scan that list of gameplay principles above, you'll notice that most of the popular FPSs from the last few years have abandoned just about all those concepts.

I'm not saying there's not some fun to be had in Doom 3, and I would certainly never deny that other people's tastes are different from mine. For those who love Doom 3, I envy you, and I would never deny the enjoyment you get from it. I'm not saying that Doom 3 is bad, but I am arguing it's

Think of it this way: you'd be surprised if they remade the Doom 2 engine for Doom 3. So why aren't we surprised that they've remade the same old gameplay?

this id feel is by comparing it to things like Operation Flashpoint or Hidden and Dangerous. Both of those games had an almost sluggish feel to the engine in terms of responding to your inputs. Playing them felt like wading through water, while id engines make you feel like you're flying. Trite, I know, but it makes the point.

Still, I am so far pretty underwhelmed by the gameplay in Doom 3. Granted, I haven't finished it yet, so I'll withhold my final judgement until then, but so far it's been the same as the games id wrote to create the FPS genre: you're alone; carrying dozens of weapons simultaneously; you can take multiple hits before you die; and you can heal yourself instantaneously with med packs; there are weapons, ammo and items scattered around the place willy nilly (I know there are some attempts to explain this, but they're thin – at least there aren't any wooden crates though); the baddies are dumb, and don't work together; and the main difference between the tough and not-so-tough baddies is the number of shots required to bring them down. And the final crowning achievement is a return to 'find that key, open that door' puzzle levels.

one big step backwards in terms of gameplay.

This is not the end of the world though, because I know other developers are signing up for the engine. I am a bit sceptical about what we'll see from them, though. If the last couple of years is anything to go by, we'll get a whole spate of compromised games that have been lobotomised by consoles and publishers pushing for the lowest common denominator (geez, I've gotten bitter...).

But then we have the mod community, and that's where the real hope lies. Having said that, though, I was thinking about this point the other day. Personally, I think it's a really sad indictment on the games industry that we have to rely on bands of teenagers with hacked copies of 3ds max and a modding toolkit to do all the work and come up with the goods.

Still, there is always the possibility that the industry will swing back some time soon. History has shown that all it takes is a couple of groundbreaking games in a market starved of innovation and the whole industry can be quickly turned around. Remember Baldur's Gate, or Everquest, or Command and Conquer? We can only hope.

Proactive



AI Proactive

Enhance your system without lifting a finger
AI Proactive Series – The World's Smartest Motherboards



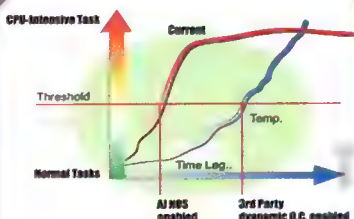
WiFi-g™ Onboard Access Point

WEP? SSID? Building a home WLAN used to be a hassle with confusing acronyms and cryptic menus. With WiFi-g, and its easy setup wizard, high-speed WLAN is a few clicks away. WiFi-g can serve as the access point or a wireless adapter for PCs to connect to existing WLAN. (Compliant to IEEE 802.11g 54Mbps data transfer.)



AI NET2™ Diagnose LAN connection before entering OS

Network problems are often caused by bad cable connection. AI NET2 remotely detects cable connection the second you turn on the system, and reports back any faulty connections up to 100 meters at 1 meter accuracy.



AI NOS™ Boost performance when you need it the most

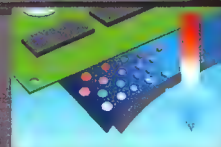
AI NOS intelligently detects system loading and automatically boosts performance for the most demanding tasks. Unlike other dynamic overclocking mechanism that overclocks according to temperature, AI NOS accelerates exactly when it's most needed.



Stack Cool™

Cooler Overclocking and Quieter Operation

Stack Cool utilizes a mini PCB stacked against the main PCB to conduct heat away from power components, resulting in a 10°C Celsius temperature reduction. This fan-less design enables cooler overclocking, greater stability and longer system life without an extra noisy fan.



ASUS AI Proactive Motherboards

P5AD2 series

Intel LGA 775 CPU
Intel 925X + ICH6R
DDR2 533



P5GD2 series

Intel LGA 775 CPU
Intel 915P + ICH6R
DDR2 533



Value PCI-Express bundle coming soon:
P5GD2 motherboard + EAX800XT Platinum/2HDTV graphics card

P5GDC-V series

Intel LGA 775 CPU
Intel 915G + ICH6R
DDR2 533 / DDR 400



P5GD1 series

Intel LGA 775 CPU
Intel 915P + ICH6R
DDR 400



Value PCI-Express bundle coming soon:
P5GD1 motherboard + EAX600XT/TD graphics card

ACHIEVA
GROUP OF COMPANIES

Achieva Technology Australia
Phone: (02) 9742 3288
www.achieve.com.au

cassaaustralia

Cassa Australia
Phone: (02) 8748 6755
www.cassa.com.au

INGRAM
MICRO

Ingram Micro Australia
Phone: 1300 65 3333
www.ingrammicro.com.au

SYNNEX

Synnex Australia Pty Ltd
Phone: 1300 880 038
www.synnex.com.au

ASUS®

au.asus.com

GERBON



1 SuperFlower PSU

Supplier: SuperFlower

Website: www.super-flower.com.tw

Phone: N/A Price: \$199

The colour blue commonly symbolises peace, cold, stability and technology – thus, there's good reason for this silent PSU to contain four blue LEDs. In total it has five rails, with 10 Molex, two SATA and two floppy power connectors. There are three options for the single 140mm fan – high, low and auto. Auto checks the temperature and speeds up or slows down the fan accordingly. When the system is turned off, it will continue to spin for another 10 minutes. With a peak of 530W, this 480W PSU will keep things peaceful.

3 Universal Notebook Power Adapter

Supplier: Anyware

Website: www.anyware.com.au

Phone: (07) 3856 3999 Price: \$69

This kit is basically a substitute for those ugly, bulky cables that somehow have a knack for going on a hiatus. So screw them, grab this kit and you're set for the life of today's 19V-in notebooks. Particularly more useful if you have access to several different notebooks, the power pack is supplied with six small DC power output tips, a sizeable list of manufacturers and the correct adaptor to use for each model – essentials the handyman in you will love.



2 Corsair Twin2X1024-5400C4

Supplier: Altech

Website: www.altech.com.au

Phone: (02) 9735 5655 Price: \$660

DDR-2 runs at a faster clock speed than DDR400 but is held back by a CAS latency of 4. This new 1GB Dual Channel DDR-2 kit from Corsair is capable of running at 667MHz, up from the 533MHz of the standard DDR-2 memory, however it still bears a latency of 4. For overclockers with a board that breaks through Intel's overclocking lock this memory will help you push your FSB higher, but at standard settings it performs no differently to its less obscenely priced little brother.

4 Apple Airport Express

Supplier: Apple Australia

Website: www.apple.com.au

Phone: 13 36 22 Price: \$219

Apple's smaller cousin to its Airport Extreme range is an impressive compact wireless router and streaming music player all in one. With an internal antenna and AC power adaptor, and weighing just 190g, this thing is tiny. Sporting 80.11g connectivity this little box of wireless joy can act as a base station, bridge, share your cable or ADSL broadband connection, and best of all stream music from a PC or Mac direct to a stereo or home theatre system. It even supports digital out!





Thermaltake SilverRiver 3.5in USB

Supplier: Thermaltake
Website: www.thermaltake.com.au
Phone: (03) 9763 1622 **Price:** \$129

From our favourite manufacturer of platinium comes this USB 2.0 external PATA HDD enclosure. Very basic in design it's quite effective – there's a silent 1500rpm fan in the base that ventilates air under the HDD and other than the rubber feet, there are no special silencing methods, so the noise levels only jump as high as the drive you choose. Jacking in a 250GB 7200rpm, we copied a 100MB compressed file over a USB 2.0 connection on our testbed. On average it took 4.3 seconds, or about 24MB/s. Not too shabby.



FanPal

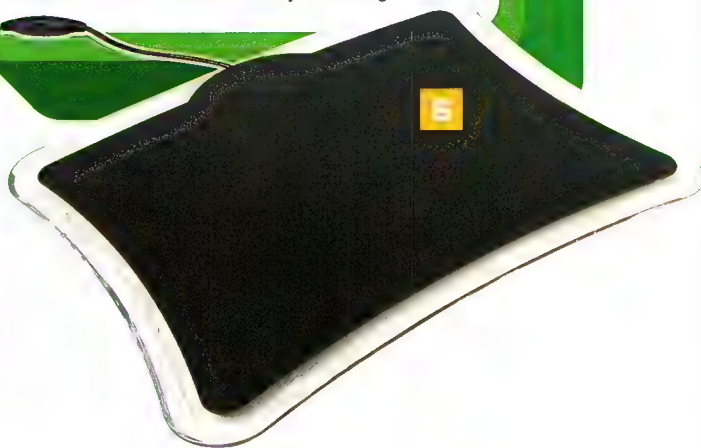
Supplier: Antec
Website: www.antec.com
Phone: N/A **Price:** US\$19.95

Computers don't hold the monopoly on cooling, people need cooling too! At least that's the premise behind the FanPal, a personal USB powered desktop fan. Naturally, it goes without saying that any sort of fan these days needs flashy glowy lights to give it the 'cool' factor, and FanPal follows the trend. Stick it on your head and pretend you're a heatsink, or place it on your desk for multicolour cooling goodness while you game. An adjustable base lets you position the airflow, but otherwise this is a simple tool for a simple job.

Flexigrow XRaider mouse pad

Supplier: Dick Smith Electronics
Website: www.dse.com.au
Phone: 1300 366 644 **Price:** \$29.98

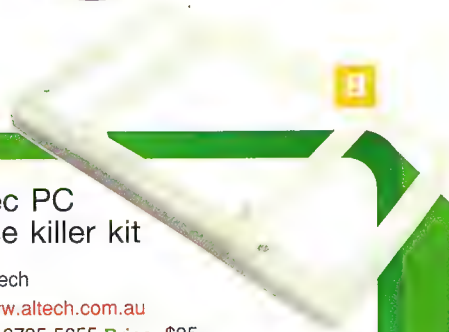
Flexiglow knows how to make decent mouse surfaces and use superscripts. Not unlike the original FX Game Pad, this lightly textured, plastic pad is sweet blissful love to your mouse's rear, whether ballatory or ocular. The primary differences being a larger and thinner surface area, it's more stable with well-placed rubber feet. Being USB (unfortunately not a USB hub) with bright LEDs, they've finally included a power level dimmer for those romantic nights on the cyberway. Trackballers don't know what they're missing.



Antec PC Noise killer kit

Supplier: Altech
Website: www.altech.com.au
Phone: (02) 9735 5655 **Price:** \$35

After years of tornado force winds cooling our processors and chipsets, some of us are longing for an age of powerful *and* quiet PCs. Why do the two have to be mutually exclusive? According to Antec they don't, and the PC Noise Killer Kit goes part way to making this a reality. Providing a PSU and two 80mm fan silicone gaskets, the kit aims to reduce noise caused by vibration conducted through the chasis. Pair with a quiet CPU cooler such as the Gigabyte 3D Rocket and finally you'll be able sleep with your baby.

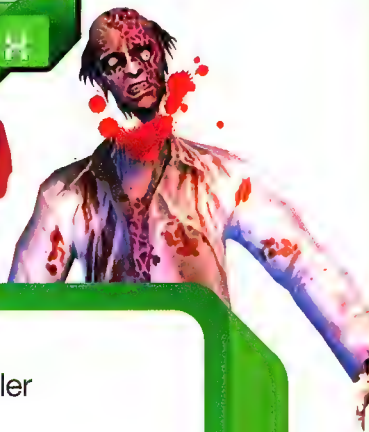




Joytech Xbox gun controller

Supplier: Take Two Interactive
Website: www.take2games.com.au
Phone: (02) 9482 3455 **Price:** \$59.95

If you're a fan of blasting zombies (and c'mon, who isn't?), you know there's nothing sweeter than spraying brains all over the walls with a well-placed shot to the melon. Joytech's Sharp Shooter light gun gives you all the control you could ask for with a detachable top mounted scope and red laser targeting system. Three fire modes, generous cord length and a comfortable grip suit even the biggest hands. This is a real go-er, even if you can only use it with House of the Dead 3 and Silent Scope.



Creative NOMAD FM wired remote

Supplier: Creative
Website: au.creative.com
Phone: (02) 9021 9800 **Price:** \$149

Who *doesn't* want to accessorise their NOMAD Jukebox, MuVo² or Zen? The NOMAD FM wired remote is the ideal add-on for these players, providing voice recording and FM radio functionality. The remote also doubles as an easy-to-access control for your player, so you can safely store it in your bag, pocket or undergarments. The in-built microphone provides high quality recording, and there's an EAX button, which would probably be more appealing if the instructions or box actually told you what it does.



FREE DELIVERY* FOR ORDERS ABOVE \$300 TO METRO NSW, ACT, VIC, QLD, SA

Intel P4 S478 Processors with HT

Pentium 4 3.0E (800fsb, 1MB)	315
Pentium 4 3.2E (800fsb, 1MB)	380
Pentium 4 3.4C (800fsb, 512KB)	490

Intel P4 LGA775 Processors with HT

Pentium 4 520 (2.8GHz, 800fsb, 1MB)	290
Pentium 4 530 (3.0GHz, 800fsb, 1MB)	315
Pentium 4 540 (3.2GHz, 800fsb, 1MB)	385
Pentium 4 550 (3.4GHz, 800fsb, 1MB)	475
Pentium 4 560 (3.6GHz, 800fsb, 1MB)	748

AMD AthlonXP SocketA Processors

AthlonXP 2500+ (1.8GHz, 333fsb, 512KB)	145
AthlonXP 2600+ (1.9GHz, 333fsb, 512KB)	160
AthlonXP 2800+ (2.0GHz, 333fsb, 512KB)	260
AthlonXP 3000+ (2.1GHz, 333fsb, 512KB)	285
AthlonXP 3200+ (2.2GHz, 400fsb, 512KB)	350

AMD Sempron Processors

Sempron 2400+ (1.67GHz, 333fsb, 256KB)	115
Sempron 2500+ (1.75GHz, 333fsb, 256KB)	135
Sempron 2600+ (1.83GHz, 333fsb, 256KB)	150
Sempron 2800+ (2.1GHz, 333fsb, 256KB)	190
Sempron 3100+ (1.8GHz, 400fsb, 256KB)	215

AMD Athlon64 Socket754 Processors

Athlon64 2800+ (1.8GHz, 512KB)	248
Athlon64 3000+ (2.0GHz, 512KB)	280
Athlon64 3200+ (2.2GHz, 512KB)	360
Athlon64 3400+ (2.4GHz, 512KB)	505
Athlon64 3700+ (2.4GHz, 1MB)	800

AMD Athlon64 Socket939 Processors

Athlon64 3500+ (2.2GHz, 512KB)	585
Athlon64 3800+ (2.4GHz, 512KB)	1100
Athlon64 FX53 (2.4GHz, 1MB)	1400

Dual DDR Matched Memory Modules

GEIL 512MB (2X256MB) DDR PC3200 Pack	160
GEIL 1GB (2x512MB) DDR PC3200 Pack	305
GEIL 1GB (2x512MB) DDR PC4000 Ultra Pack	395
GEIL 2GB (2x1GB) DDR PC3200 Pack	780
Kingston 512MB (2x256MB) DDR PC3200 Pack	175
Kingston 1GB (2x512MB) DDR PC3200 Pack	335
Corsair 1GB (2x512MB) XMS3200XL Pack	470

IDE ATA100 Hard Drives

Western Digital 80GB 7200rpm 8MB, 3yr Wty	113
Western Digital 120GB 7200rpm 8MB, 3yr Wty	140
Western Digital 160GB 7200rpm 8MB, 3yr Wty	155
Western Digital 200GB 7200rpm 8MB, 3yr Wty	196
Western Digital 250GB 7200rpm 8MB, 3yr Wty	315
Seagate 80GB 7200rpm 2MB, 1yr Wty	110
Seagate 120GB 7200rpm 8MB, 3yr Wty	145
Seagate 160GB 7200rpm 8MB, 3 yr Wty	160
Seagate 200GB 7200rpm 8MB, 3 yr Wty	191

SerialATA S-ATA150 Hard Drives

Western Digital 80GB 7200rpm 8MB, 3yr Wty	120
Western Digital 120GB 7200rpm 8MB, 3yr Wty	150
Western Digital 160GB 7200rpm 8MB, 3yr Wty	175
Western Digital 200GB 7200rpm 8MB, 3yr Wty	215
Western Digital 250GB 7200rpm 8MB, 3yr Wty	315
Seagate 80GB 7200rpm 8MB, 3yr Wty	125
Seagate 120GB 7200rpm 8MB, 3yr Wty	159
Seagate 160GB 7200rpm 8MB, 3yr Wty	180
Seagate 200GB 7200rpm 8MB, 3yr Wty	212
Western Digital 36GB 10000rpm 8MB, 5yr Wty	171
Western Digital 74GB 10000rpm 8MB, 5yr Wty	325

DVD Writers

Lite-On SOHW-1213s 12x DVD+-RW Drive	149
Sony DRU700A 8x Dual Layer Drive	175
Pioneer DVR108D 16x Dual Layer Drive	165
Pioneer A08XL 16x Dual Layer Drive	275

LCD Flat Panel Displays For Gaming

Samsung 710N 17" (500:1, 12ms, 3yr Onsite)	675
Samsung 172X 17" (500:1, 12ms, 3yr Onsite)	800
CMV 726D 17" (500:1, 14ms, 3yr Onsite)	625

Shuttle XPC Barebones Kit

SN45G v2 nForce2 Ultra AMD Barebones	385
SN85G4 v2 nForce3 Athlon64 Barebones	500
S61G2 v3 i865G Intel P4 Barebones	420
ST62K Zen ATI RS300 Intel P4 Barebones	455

Motherboards for SocketA

Abit NF7-S2G nForce2 Ultra Motherboard	128
Abit NF7-S V2 nForce2 Ultra Motherboard	148
Abit AN7 nForce2 Ultra Motherboard	157

Motherboards for Athlon 64

Gigabyte GA-K8NS nForce3 250 Motherboard	168
Gigabyte GA-K8NS Pro nForce3 250 Motherboard	192
Abit KV8 Pro K8T800 Pro Motherboard	178
ASUS K8V Deluxe K8T800 Motherboard	220
ASUS A8V Deluxe K8T800 Pro Motherboard	223

Motherboards for Pentium 4

Gigabyte 8IPE1000 Pro2 i865 Motherboard	170
ASUS P4P800-E Deluxe i865 Motherboard	185
Abit AG8-3rd Eye i915P Motherboard	258
ASUS P5GD2 Deluxe i915P Motherboard w/ Wifi	359
Abit AA8-3rd Eye i925X Motherboard	303

Video Graphic Cards

Gecube ATI Radeon 9600XTG 128MB AGP Card	230
Gecube ATI Radeon 9800Pro 128MB AGP Card	365
Gecube ATI Radeon x800Pro VIVO 256MB AGP Card	755
Sapphire ATI Radeon x800Pro VIVO 256MB AGP Card	790
Albatron nVidia 6800 128MB AGP Card	555
Albatron nVidia 6800 GT 256MB AGP Card	775
Leadtek nVidia 6800 GT 256MB AGP Card	825

*Free freight excludes bulky items (case, speakers, printers, towers, CRT, systems) All Pricing are inclusive of GST. Pricing & availability are subject to change without prior notice. Check our Website for updated pricing and availability. Logos are property of the respective companies

PCMarket

Computer Systems, Notebooks, Hardware and Software Supplier

tel. (02) 9898 3055
browse our full range on-line 24/7: www.pcmarket.com.au
Quantum Corporate Park, Unit 18, 287 Victoria Rd, Rydalmere NSW 2116

11 Dance Mate

Supplier: Take Two Interactive
Website: www.take2games.com.au
Phone: (02) 9482 3455 **Price:** \$24.95

No longer will you be forced to glue your arse to the seat while your body is pumped with adrenaline. To properly dance or throw the golden knock out punch, jump onboard the PS2 Dance Mate. Still compatible with all games that use the standard controller, it is a large floor mat with a different arrangement. Use on carpet can cause slippage and therefore inaccuracy so it's more effective on a harder surface. It provides an advantage with games involving human manoeuvring, like tripping up or even breaking the boogie with Crash.



GEARBOOK

12

12 ILM LEDmini

Supplier: Altech
Website: www.altech.com.au
Phone: (02) 9735 5655 **Price:** \$30

Fascination with glowy things will forever remain core to *Atomic*, and the ILM LEDmini is no exception. Light up your lair with two multicolor light tubes you can attach to your monitor, desk, or dog. A built-in controller box allows the lights to dance to music or be set to one of seven colors ranging from deep red, to sky blue, to moody green. They run cool, quiet, and can be positioned anywhere a USB cable will reach. Internal case lighting is so passe, darling, now light up everything *outside* your box!



If you're
 serious about
 you should gaming
 be wearing one
 of these!



SENNHEISER

www.sennheiser.com.au

Thanks to modern technology, Sennheiser Communications PC headsets open up completely new dimensions to you and your computer. Enjoy Internet telephony, chatting or gaming like never before.

Australia
 Freecall 1800 648 628 or
 Email sales@syntec.com.au
 New Zealand
 Call 09 163 9885 or
 Email sales@syntec.co.nz

If not,
 you could be
 wearing
 one
 of these!





Tiny's Assimilated



Technical details

- Athlon XP 3000+
- Gigabyte GA-7VT600 1394
- 1GB Hyundai DDR400
- Gigabyte GeForce4 Ti4600 64MB
- 40GB Seagate, ATA133, 7200rpm HDD
- 80GB Western Digital, ATA100, 8MB cache, 7200rpm HDD
- Pioneer 105 DVD Burner
- Lite-On LTD165h DVD-ROM
- Modded Cooler Master Aerogate II
- Custom made, Hidden exhaust system
- 8 case fans

Star Trek: First Contact was the inspiration for this mod. My goal was to create organised chaos on the inside (the Borg element) but clean, neat with no visible mod's (except for the window) on the outside (Federation).

To achieve this I made a custom air duct for the inside top of my case and mounted the fans on it. Then I put the duct exit the case at the rear just above the PSU. Next came the UV reactive rounded IDE leads. I hand braided *every* PSU cable,

then covered them in UV reactive shrink wrap and added the UV reactive molex plugs. The HDD's were turned round to hide the cables and all the other wires that were hidden in a false wall.

For the outside I stripped all the paint back and then polished it thoroughly to a deep shine. I went on to apply 10 coats of automotive paint with three coats of clear over the top. I applied the same treatment to all the drives and am now very pleased with the end product.



Timmy's Wooden Shark



Technical details

- Athlon XP 2000+ CPU
- Gigabyte GA-7VM400AM mobo
- 256MB DDR266 RAM
- Integrated graphics and sound
- 40GB Western Digital hard drive
- Lite-On 16x DVD drive
- Standard ATX 300W PSU
- 30cm x 30cm x 30cm in size
- Red cold cathode and LED intake fan
- Made from plywood and pine
- Aluminium edging
- Latches and locks to keep those thieves out!

I needed a new case to house my spare PC. I wanted it to fit in with the furniture so wood was the obvious choice. I already had some structural pine at home so I set out creating a frame for it. This was remarkably easy and only took me a few hours to actually do.

The next step was to get the wood for the panels. I decided on ply because it had a definite grain and wasn't too expensive. So I cut all my panels and stuck them on and had the basis for

my box. I just randomly thought of a shark (I don't know why!!!) and cut that out of one of the panels and bolted on some Perspex which I had left over from my last mod. The ply edges looked ugly, so I decided Aluminium would be the best way to go to hide them. All that was left now was to simply attach the handles and locks, before staining the wood!

Mission accomplished and it was a bargain, only costing me about \$60!



Amish Penguin Server



Technical details

- 1985 IBM monitor shell
- PII 433 @ 500MHz
- 4MB graphics card
- 64MB SD RAM
- 5.4GB Western Digital HDD
- ASUS mobo
- Dual 80mm blowholes
- Custom fan bus
- 13-inch glass picture tube window
- Green cold cathode

This mod all started with a trip to the local op-shop and the acquisition of two 1985 IBM monitors worth a total of only \$5. I kept the one that worked and then set to work completely gutting the other.

After drilling the tube to remove the vacuum, I used a non-notched diamond angle grinder blade to cut the bulk of the tube away leaving the original mounts. I then set to work steam-cleaning the old beige plastic to restore it to its original shine

and gleam. With the addition of a number of other features – namely dual blowholes, a fan bus, a power supply window, three super bright green LED's and one green cold cathode the case was ready to assemble.

By far the most difficult part of the mod was re-routing the plugs on the back of the case. System specs aren't that great, however it is good enough to route our broadband as well as acting as a file server and remote Linux desktop server.



Axel's HiVolt



Technical details

- DFI LanParty NFII Ultra mobo
- Barton XP2500+ @ 2.2GHz
- Cooler Master Aero 7+ HSF
- 2 x Kingmax 256MB DDR400
- PowerColor ATI 9600SE
- TT PurePower 480W PSU rpm controlled
- 2 x HDD mobile racks = various HDDs
- AOpen CD-RW/DVD-R combo
- 5 case fans (2 x 60mm at top)
- Fans and lights controlled via front instrument panel

The mod features chicken wire over Perspex windows, hand made Aluminium instrument panels, UV cabling and sleaving. Two UV cold cathodes lit up the inside. I went for the chicken wire and Perspex window on both sides in a vain attempt to be original. The centrepiece is the 'Control Panel' which houses 2 x 80mm red LED fans, CPU and PSU fan rpm control dials, power switches for UV lighting and top dual 60mm fans and 5V/12V

toggle switch for the front fans. I used the FRONTX panel connectors to bring USB, FireWire and audio to the front of the computer. The original on/off and reset pushbuttons and system activity LEDs have been replaced with handmade panel to match the rest of the mod. A temp monitor indicates how things are doing inside. The mod took many weekends and I'd like to thank my wife for not throwing me out.



Hotbox of the month wins the ABIT RX600XT-PCIE!

Vote for this month's hottest Hotbox at www.atomicmpc.com.au. Voting closes 20/10/2004. Send your Hotbox pics and 200-word description to hotbox@atomicmpc.com.au.

- ATI RADEON X600XT with 128MB RAM
- x16 PCI Express connection



'It's groovy baby!'
Austin 'Danger'
Powers

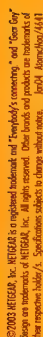


share your broadband. So you are tired of single player gaming with the Xbox or PlayStation2. But to play others over the internet, you would have to drag the TV into your bedroom, the only place with internet access. By extending your home network, you can now team up with your mates over the internet. What's more, you can do it from the TV in your lounge room, challenging your friends three blocks away, or a whole group across the world. With wireless networking, anything's possible, 24/7.



NETGEAR®

Pre-Sales 1800 502 061 Web www.netgear.com.au





Hey Hey it's the Bitboys

John Gillooly casts a sympathetic eye over the trials and tribulations of one unfortunate 3D company.

Persistence. It is a rare quality in the tech industry but actually quite common in the cutthroat world of 3D graphics. While the big players Intel (yup, integrated graphics sell heaps), ATI and NVIDIA dominate sales and mindshare, there are several other players like PowerVR, Matrox, XGI, S3 and more all working on both licensable IP and actual Silicon.

But throughout the turbulent history of 3D there has been one company that has been plagued with bad luck, coming close to true innovation at several points through the evolution of 3D graphics but never actually getting a product to market. That company is Finland's contribution to 3D hardware, Bitboys.

It all started with a product called Pyramid 3D, which featured rudimentary shaders at a time when the only competition was Voodoo Graphics. This almost made it to market, only to fail when Bitboys manufacturing partner, a company called TriTech, went bust after a long running patent dispute.

In 2000 Bitboys got close again to a product launch with Glaze3D. This smashed the memory bandwidth issue that was plaguing 3D engineers across the industry. It used a combination of a 512-bit memory bus and 9MB of embedded DRAM (eDRAM) to do this, but it lacked a Transform and Lighting unit, so the decision was made to go back to the drawing board.

By the end of 2001 it was make or break time for Bitboys. It had readied its DX9.0 card, called Avalanche 3D and was moving towards products when its eDRAM partner, Infineon, pulled the plug on its eDRAM project, effectively making it third time unlucky for Bitboys.

Unsurprisingly by this time Bitboys were looking beyond the PC market, where the battle between ATI and NVIDIA was starting to heat up. It identified the embryonic mobile gaming market as a prime target for its technology, and since then has been working hard on a series of 3D

graphics cores for a range of mobile uses.

Currently the only named licensee of this technology is NEC, which announced that it had integrated the previous iteration of the Bitboys technology into the TFT/LCD controller of its next generation phones.

At the recent Siggraph conference Bitboys unveiled the next generation of its cores, three models codenamed G32, G34 and G40. These are tailored to different segments of the market – G32 is a 2D core designed for volume production, providing compatibility with the OpenGL 1.1 mobile graphics API, but keeping the core size small and power consumption miniscule.

Gamers will be more interested in the G34 and G40 cores. G34 combines 2D and 3D operations, employing the OpenGL ES1.1 feature set much like first generation Hardware T&L cards replicated the OpenGL 1.5 pipeline in hardware. It also has a programmable geometry engine that can be used for vertex shading effects. Bitboys claim this product is capable of generating antialiased 32-bit images running at over 30fps.

But the real beast is the G40. This core is fully programmable, combining the already large feature set of the G34 with pixel and vertex shading abilities as well as acceleration support for vector graphics formats like Flash and SVG. However while Bitboys' announcement touts the feature set of this core, no where does it talk about how power efficient it is, which is currently the biggest roadblock to adoption of the technology.

While the nature of mobile phone graphics means that for now choice of graphics hardware is an incidental side effect of mobile phone brand choice, the launch of these cores is important – not just for the morale of Finland's little company that could, but also because it demonstrates that the lessons learned in desktop 3D need not necessarily be repeated on mobile platforms. The jump straight into fixed function Transform and Lighting took four years on the desktop, and then it was another year and a half before programmable shading hardware arrived. In one fell swoop Bitboys have brought both of these to the mobile space. But more than this – it looks like the beleaguered Bitboys may finally get to sell something.

ABOVE: This is the level of detail Bitboys are promising on phones.





OpenGL gets a shot in the ARB

How many times can a renaissance be enjoyed? John Gillooly looks at the past, present and future of OpenGL.

OpenGL has had a rough run in the PC gaming scene over the past few years. To a large degree it has stagnated while Microsoft has aggressively driven Direct3D as the game development API of choice. Interestingly this shift in focus mirrors the evolution of hardware development over recent years, and the way that programmable shaders have been employed.

It hasn't always been the case. Hardware Transform and Lighting was essentially a complete hardware implementation of the OpenGL 1.2 pipeline, after which focus shifted to programmable hardware and Direct3D. Work was being done on shaders for OpenGL, but the impetus was taken by Direct3D.

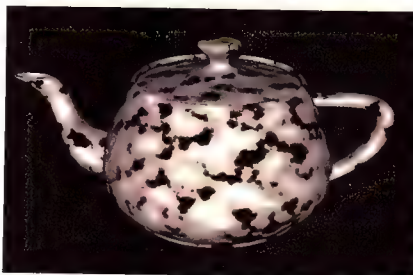
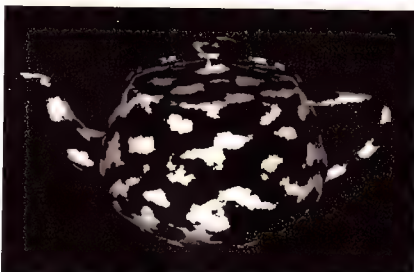
This didn't stop the small number of OpenGL developers from using a combination of draft OpenGL shader standards and custom 3D hardware calls to code games. By far the most notable developer of OpenGL based games is id Software, and the recently released Doom 3 actually employs an Architecture Review Board 2 (ARB2) rendering path. This is based upon the long-lived draft OpenGL 2.0 standard, which was finally made official during this year's Siggraph event.

OpenGL 2.0 contains several much needed additions to the standard. The first, and biggest, is the aforementioned introduction of a shading language, but the changes don't stop there. It also adds support for multiple render targets, point sprites, two-sided stencilling and memory friendly rectangular textures.

What it does lack is ratified floating point data standards, there is a working group on this but it is not scheduled to report until later this year.

We do wonder what lasting impact OpenGL 2.0 will have in the gaming market. The list of commercial OpenGL titles is small, and becomes even smaller once you remove games that use id Software's Quake or Doom engines. In fact, the only OpenGL native titles besides these to be released in the last year are the RPG Star Wars: Knights Of The Old Republic (even though it was initially developed for Xbox) and Relic's RTS Homeworld 2.

With the impetus behind DirectX gathering speed, especially as the slow crawl to the shader centric Longhorn OS



ABOVE: This erosion effect is from 3dlabs OpenGL 2.0 demos, and is achieved through the use of shaders.

continues, OpenGL will continue to struggle to gain a larger share of the market. Development of titles to run on not only Windows but also Linux and MacOS is not commonplace at all nowadays, so the perceived benefits of ease of portability do not come into play. Initiatives like Microsoft's XNA will impact significantly as this DirectX focused way of developing for Xbox, Xbox Next, Windows and Smartphones opens up a much larger target market than OpenGL does. **JG**

ShortCircuits

What was believed to be the first malicious trojan for the Symbian mobile phone OS has actually turned out to be an unintentional side effect of the copy protection system. Pirate copies of the game Mosquitos, found circulating on Peer 2 Peer networks were exhibiting strange behaviour when installed on phones, secretly sending SMS messages to a premium rate number while the game ran. It turns out that this was designed to alert developers to the use of unlicensed copies, but after the uproar the developers have dropped the price premium on the SMS line. New versions of the game lack this function, but it still exists in the pirate copy floating online.

Intel has announced it is gearing up for the introduction of Extreme Ultraviolet Lithography in its semiconductor manufacturing process, although not until it hits 32nm production in 2009. EUV employs light with a wavelength of only 13.5nm to



make structures on a chip, however it brings new challenges to bear. At this wavelength light is absorbed by nearly every surface, so Intel has developed a reflection-based

tool called MET (Micro Exposure Tool) to enable such tiny structures to be built, rather than rely on traditional lenses to focus the light onto the Silicon wafer.

August saw Microsoft finally delivering its security obsessive Service Pack 2 for Windows XP and ending a series of rolling delays that have pushed not only the release for SP2 back, but also work on Windows XP 64-bit and Longhorn. It is available for download as a 266MB network package or as a smaller package over the revamped Microsoft Windows Update site. The noticeable changes are small, new security warnings and enhanced firewall, updated Bluetooth and wireless networking support and apparently a large but unintentional nerfing of FireWire800 transfer speeds. FireWire800 device manufacturers should soon have updated firmware on their websites, so keep an eye out.

SUB ATOMICAN

We love our subscribers, but we love our 2-year subscribers even more.

These most special Atomicans deserve something equally special, so, we've created a new elite Sub-Atomic club that opens up a whole new world of goodness for members only. To begin with, how about some kick-arse computer hardware for ludicrously low prices?

An Atomic 2-year subscription not only gets you every issue of the mag delivered safely to your door at a stupidly low price of just \$3.95 an issue, but now you can also rake in savings of up to 20% at a number of Australian and NZ computer resellers! For those regular and essential upgrades, the savings will add up fast - how will you spend your 'free' money?

Think about it. The money you'll save using your new Sub-Atomic card will more than cover the extra cost of upgrading or subscribing now. But you do need to make your choice now because signing up for a 2-year sub is the only way to get your hands on one.



Are you a reseller interested in taking part in this promotion? Contact us to find out more and receive an information pack - Lucia Cursio lcursio@atomicmpc.com.au

Become a Sub-Atomican and save hundreds!

Payment details:

☐ I am an existing subscriber. Please upgrade my subscription to a 2-year subscription and send me my Sub-Atomic discount card. *

Australia: ☐ \$59.00 New Zealand: ☐ NZ\$71.00

☐ I am a new subscriber. Please sign me up for 2 years and send me my Sub-Atomic discount card.

Australia: ☐ \$95, save 43% New Zealand: ☐ NZ\$115, save 43%

My personal details:

First name _____ Surname _____
Company name _____ Position _____
Email _____
Address _____
Suburb _____
State _____ Postcode _____ Country _____
Phone () _____ Fax () _____

Payment details:

Please debit my credit card for \$ _____

☐ Bankcard ☐ MasterCard ☐ Visa ☐ American Express

Card No.

Expiry date ____ / ____

Cardholder's name _____

Signature _____

☐ I enclose a cheque/money order for \$ _____

made payable to: **AUST:** AJB Publishing **NZ:** Mercury Solutions

Atomic will occasionally send you promotional offers and competitions. If you would prefer NOT to receive these offers, please tick the following boxes to specify your preferences on what you receive.

Please do not send me offers from offers from Atomic and associated products ☐
from AJB products ☐ or from AJB Publishing approved third parties. ☐

AUST: Priority Fax: (02) 9492 7310 Phone enquiries: (02) 9492 7399 Email enquiries: subscriptions@atomicmpc.com.au

NZ: Priority Fax: (09) 625 3006 Phone enquiries (09) 625 3005 Email enquiries: kpapesch@gordongotch.com.nz

* Conditions apply, please see full terms and conditions on Atomic website

CI/ASUBATM



Definitively Digital

■ Luke Gould delves into the digital domain of high definition television.

You may have noticed the ads on TV featuring such hot stars as Bert Newton peddling digital TV and how it delivers better pictures, clearer sound and 16:9 widescreen viewing pleasure. You probably already know all this, seeing as digital TV as been available since the start of 2001. But while the perception exists that digital TV is somewhat of a hack on top of regular TV; the truth is that it's a whole new system of content delivery.

I'm sendin' all my packets to you

The key difference between analogue TV and digital TV is simple: analogue TV uses variable voltage frequencies in the transmission signal to represent video and audio, whereas digital TV uses the signal as a medium to send encoded video and audio data which is then decoded upon arrival.

One of the biggest problems with analogue TV is that it doesn't use its available bandwidth efficiently (see Figure1). The data is sent in large bursts



so if one of these bursts is slightly scrambled between the transmitter and your TV (household appliances and poor antenna and cable installation can affect the signal as much as trees and buildings) ghosting and noise will appear.

The digital TV system used here in Australia is called DVB-T, which stands for Digital Video Broadcast-Terrestrial. DVB-T is a standard set by the DVB consortium and is used to define how digital video and other services should be sent over certain carriers (over the air, through cable, satellite transmission) and how that data should be encoded and decoded.

DVB-T features many tricky techniques to make sure that data integrity is high, while delivering the best bit rate for more information transmission. A DVB-T transmission starts off with either an analogue or digital signal, depending on how it was recorded, which is sent to a realtime MPEG-2 encoder and encoded at the resolution and bit rate set by the TV station and DVB-T standards. This data is then modulated so it can be sent over a radio frequency. Modulation of data is the process of converting digital data into analogue radio frequencies, which then can be sent over air, through cables (like cable internet that is modulated to travel over cable TV cables) or beamed via satellite. A modulation method called Coded Orthogonal Frequency Division Multiplex (COFDM) is used because of its ability to keep the quality of the data high even when signal rebound and noise occur (seen as ghosting on analogue TV).

Once the data is modulated, it needs to be sent over a carrier at a certain radio frequency. The VHF/UHF (Very High Frequency and Ultra High Frequency) bands that are used to carry both digital and analogue TV are split up into 7MHz wide blocks called *channels*, a term you may recognise! As seen in Figure 1, analogue TV doesn't make efficient use of its channel bandwidth, but COFDM spreads the data evenly over a 6.7MHz portion of the 7MHz channel (it is limited to 6.7MHz to avoid signal corruption with other channels next to it). Because of this more efficient spreading of the signal, less power is needed to transmit and receive digital TV.

While any signal could be sent over DVB-T, including TCP/IP services, in Australia it's exclusively used for video streaming. DVB-T in Australia takes a page out of the current European DVB-T standard and uses MPEG-2 for video compression and MPEG-1 Layer 2 for always-on audio and AC-3 (aka Dolby Digital) as an optional audio source. Some multimedia buffs may recognise these compression techniques are also used with DVDs, but unlike DVDs, a different system is used. DVDs use a program stream, which is a combined collection of *Packetized Elementary Stream* (PES) packets, all coded according to the same reference clock. Each PES has an 8-byte header which contains a 3-byte 'startcode', 1 byte for the stream ID, 2 bytes to indicate the length of the packet, and 2 bytes for timestamps to indicate when the streams in the packet should be played.

All these streams are synchronised to the same clock and there can only be one video stream. This would be restrictive for TV transmission as there could be only one channel and no extra features like electronic program guides (EPGs). So instead of using a program stream each TV station transmits one transport stream. Transport streams can pack multiple video and audio streams and each can be encoded at different bit rates, allowing for more efficient use of bandwidth. Because of all these streams, a *Program Specific Information* (PSI) header is added to tell the decoder which streams belong to which.

Since there are more streams, the PES packet of each data stream is much larger. Each PES packet is 188 bytes in size, the first four bytes is the header, which contains a *Packet Identifier* (PID), a continuity counter, which informs the decoder if

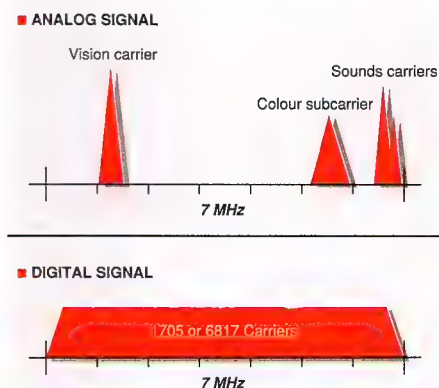


FIGURE 1: This is how analogue and digital TV use the bandwidth channel. Note how analogue uses large bursts, while digital TV is spread over the whole 7MHz spectrum.

the packets have been received in order, and other fields which detail specific information about the stream. The rest is the data itself. So when a decoder tunes in to the specific frequency of a TV channel, it will receive the main transport stream. In this stream the decoder then looks up the *Program Association Table*

(PAT) stream, which always has the first PID of 0x0000. The PAT contains a small amount of text which tells the decoder what the PID of each channel is and the program name of that channel. Each channel PID also contains a small text stream which describes which video, audio and teletext PIDs should be associated with their respective channel. These PIDs are read for information regarding how to decode the stream and the actual data streams to be decoded. With this system it's possible for different channels to use the same streams to save bandwidth (e.g. when multichannel services aren't in use).

More lines for you

So we know how digital TV makes its way to you but what's the tangible difference between digital and analogue? There are two categories of digital TV: Standard Definition TV (SDTV) and High Definition TV (HDTV). SDTV is basically the same as DVDs – it's a 576i MPEG-2 stream with MPEG-1 Layer II CD quality stereo sound with an optional AC-3 channel, which can be either 2 channel or 5.1 channel, depending on how the show was recorded. In contrast, HDTV can utilise three different resolutions: 576p, 720p and 1080i. The only option for sound on HDTV channels is AC-3. Currently 576p and 1080i are the only two standards used in Australia, with Channel 7/Prime and SBS using 576p and all other stations using 1080i. The terms 576i, 576p and 1080i tell you a number of things about their respective video streams: the numbers indicate how many horizontal lines are contained within the image while 'p' and 'i' indicate whether the video is either interlaced or progressive.

The difference between a progressive image and an interlaced image is as follows: for an interlaced video, 25 frames are shown per second, with each frame split up into two even fields. The top field is drawn first followed by the second, creating an effective frame rate of 50fps. With progressive video, 50 frames are shown per second but each frame is drawn all at once. The general consensus is that progressive video is much sharper than interlaced video but looks less fluid and requires slightly more power to decode, while interlaced video is less sharp but more fluid and requires less power to decode.

Because interlaced video requires less decoding power, higher resolutions are achieved. In most countries 576p isn't regarded as HD as there is no actual increase in resolution of the image; the only difference is in the way it's drawn. In most countries 576p is known as ED or *Enhanced Definition* but

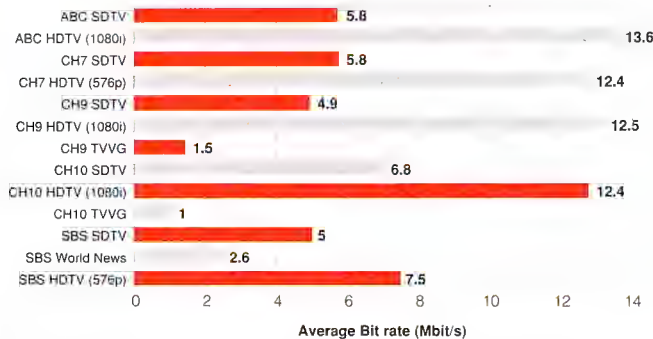


FIGURE 2: The average bit rate of all digital TV channels for metro areas, these bit rates may differ in regional areas.

because a HL@MP (High Level – Main Profile) decoder or HDTV decoder is needed instead of the usual SDTV/DVD ML@MP (Main Level – Main Profile) decoder, the Digital Broadcasting Australia committee has defined 576p as HD. On most average sized HD TV's 576p will look the same or even sharper than 1080i. Why? Because both streams have a bit rate of ~12Mb/s which means that 576p can retain the original quality of the image as it doesn't need to store as much image data as 1080i, which can cause blurring due to compression.

The 7MHz wide channel used to transmit digital TV allows a raw transfer rate of about 33Mbit/s but overheads such as COFDM and data that could be lost from bad signal quality would mean that you'd need virtually perfect reception, voiding one of the main advantages of digital TV. To combat this, each TV station's TS stream that includes all SD/HDTV channels, TV guides and multichannel services are crammed into a smaller data rate of about 23Mbit/s or less. This lower transfer rate means that all services can be received reliably without instability. 23Mbit/s may seem somewhat generous but when split between services, the bandwidth is often sucked up very quickly. As you can see in Figure 2, the biggest bandwidth suckers are the HDTV channels sucking up an average bit rate of 12Mb/s, mainly because these channels need a higher bit rate so everyone on screen doesn't look like dancing coloured blocks. The AC-3 sound usually has a higher bit rate than their SDTV counterparts too. SDTV is far behind with a bit rate ranging from 7Mbit/s to a humble 4Mbit/s (both DVDs, which are 576i/p @ 25fps, and SDTV which is 576i @ 25fps, use about 6-8Mbit/s).

So in most cases a video transmitted over digital TV will look as good as a video stored on a DVD. Video TV guides are left with the crumbs with all three services averaging 1-2Mb/s. One abnormality in the chart is SBS, both its HDTV and two SDTV channels (one is for world news, the other for normal programming) use considerably less bit rate than the other stations. This is mainly because SBS transmit their digital TV on the edge of the UHF band, which many VHF/UHF combination or even UHF standalone antennas can't pickup reliably, meaning SBS's transmission stream has a considerably smaller bitrate of about 18Mbit/s and even with this low bit rate, data errors may still occur.

Getting digital TV

Digital TV is designed to be compatible with most of the current hardware available today, especially SDTV. In order to receive SDTV, you need a SD Set Top Box (STB) which tunes into and

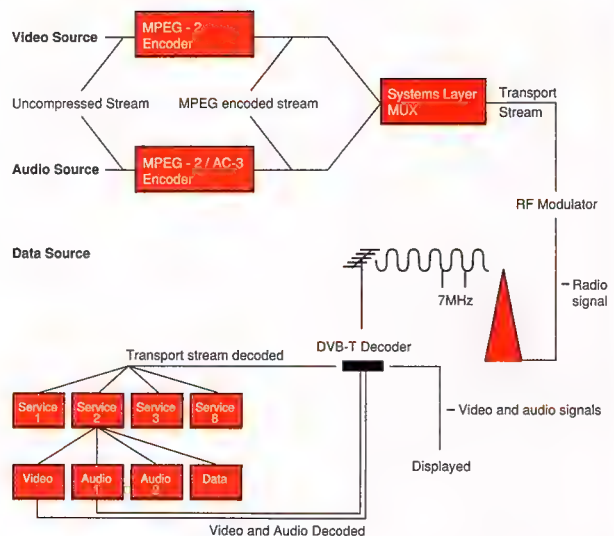


FIGURE 3: How digital TV gets from the source to your shiny, new digital TV set-top box and ultimately to your TV set.

converts the digital TV signal into analogue signals such as composite, s-video and even component or RGB Scart on particular models.

HDTV however is much more complex. In order to gain the benefits of HDTV, a TV capable of rendering high resolutions is needed. Some HDTV's do come with digital tuners, but not all. In this case a HD STB is needed. Because HD has a much higher resolution, it needs a more powerful decoder which is why HD STBs can be double the price of normal SD STBs. High definition STBs offer both composite and s-video outputs for SD capable TVs, and HD output such as component and DVI for HD capable TVs. High definition TV can also offer 5.1 surround sound which can be plugged straight into your surround sound decoder or amplifier using S/PDIF.

Digital TV should also be compatible with your current TV antenna and cabling system, but some instability may occur if either of these has become worn over time. In this instance, all that is needed is a new antenna and maybe a higher grade of coaxial cable.

Riding off into the digital sunset

Digital TV is here to stay. When analogue TV finally gets the flick around the year 2008, many more channels and higher bit rates for current channels will be available. So when your old blurry chow-fa TV dies, have a look at those nice widescreen TV and STB combos you've always wanted. Paired with digital TV, they'll be picture perfect!

Bibliography and helpful links

www.doom9.org – Tons of information and tutorials about digital TV and other forms of digital media

www.dba.org.au – Digital Broadcasting Australia Site, contains information about services provided by channels, specifications and info on STBs, digital widescreen TVs and installation guides.

www.dtvforum.info – An Aussie forum hosted by DBA, plenty of information and people in the know about digital TV in Australia.

Rock the LANParty!

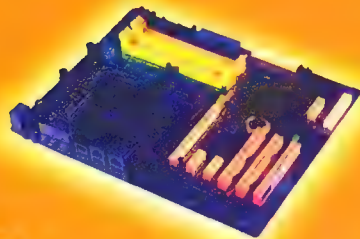
LANParty Series



The Ultimate Over Clocking Savior!
Now you can save your own
overclocking configurations,
restore them anytime and even give
them really cool names!
Only with DFI's revolutionary
"CMOS Reloaded"!



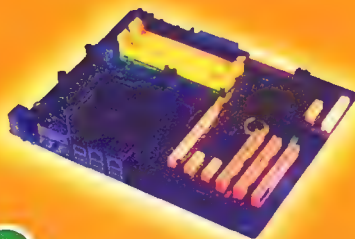
- * Support Dolby 7.1 and THX
- * Base on Intel Azalia 24bit 192KHz HD audio
- * Eliminate noise signals transferring from analog to digital and produce crystal sound output



T75

LANPARTY 925X-T2

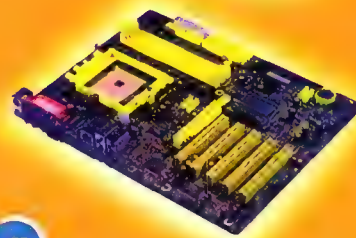
925X + ICH6R
800 FSB / Dual DDR2-533 / PCIe x 16
4 DDR Slots / 3 PCI Slots / 2 PCIe x 1 Slots
8CH Karajan Audio / 4 SATA / RAID
Dual GbE LANs / 2 1394 Ports / 8 USB Ports / ATX



T75

LANPARTY UT 915P-T12

915P + ICH6
800 FSB / Dual DDR-400 / PCIe x 16
4 DDR Slots / 3 PCI Slots / 2 PCIe x 1 Slots
8CH Karajan Audio / 4 SATA / RAID
Dual GbE LANs / 2 1394 Ports / 8 USB Ports / ATX



K8

LANPARTY UT nF3 250Gb

nForce3 250Gb
1600Mtps FSB/ DDR400 / AGP8X
4 DDR SLOTS/ 5 PCI slots
8Ch Audio / 4 SATA/ RAID
Gigabite LAN/ 8USB ports/ ATX

DFI
www.dfi.com



Multi Technology Distribution
44 Lillie Crescent Tullamarine,
VIC 3043
TEL : (03) 8346 1602
FAX : (03) 8346 1605
les.jessop@multimedia.com

Omega
Technology

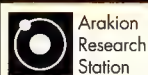
7-9 Maurice Court Nunawading,
Vic 3131
TEL : (03) 9837 4444
FAX : (03) 9837 4488
vic@omega.net.au

MITTONI
402 Ferntree Gully Road
Nottingham Victoria
TEL: (03)-9560-6100

Design for Innovation

TOP SECRET DD88641-B

**RESEARCH ASSISTANT TIM DEAN PULLS THE FILE
ON SECRET GOVERNMENT WEAPONS RESEARCH**



Arakion
Research
Station

Saraswati Corporation Scientific Report

Division of Research, Weapons and Biotechnology (DRWB)

Executive summary:

Analytical Comparison of Exobiological Organisms

Chief scientist: Dr Y. Lang

Associates: Dr M. Gamulin, Dr B. Hauer

Summary:

Research into the nature and potential of exobiological organisms as bio-weapons was undertaken, including comparisons of biology, biochemistry, development, behaviour and natural defences. Two exobiological organisms, previously the subjects of unfinished research by the Black Mesa Research Facility and Weyland-Yutani, were chosen.

Aim:

The purpose of this study is to analyse the different natural properties of the following exobiological organisms: the Xen Headcrab, as first discovered and studied by scientists from the government funded Black Mesa Research Facility in the United States during the early 21st Century; and the Xenomorph Facehugger, as discovered by the crew of the Nostromo in 2122, and studied by the private Weyland-Yutani company.

Original study of the Headcrab was discontinued after prolonged complications arising from the sourcing of samples from the dimension Black Mesa scientists designated 'Xen', including at least one Resonance Cascade, resulting in massive collateral contamination of the Black Mesa Research Facility in 2000.

Study of the Xenomorph species as a whole was undertaken on several occasions from 2179 by Weyland-Yutani, through private funding or under contract from various military agencies, although all research ceased in 2385 for unknown (classified) reasons.

Xen Headcrab (*Caput Helica - Medius*)

Caput Helica is a carnivorous, warm blooded exoskeletal organism with a quaternary lifecycle. *Caput Helica - Medius*, more commonly known by its colloquial nomenclature, Headcrab, forms the second stage.

Anatomically, the primary features of the Headcrab are its domed body, four legs, two fangs and feeding/linking apparatus at the centre of the underside. Internally, the body contains simple organs, similar to insect anatomy, although thermo-regulated like mammals. It also has a uniquely complex nervous system, although much of the nervous tissue remains dormant until the organism is connected to a host.

It has no macroscopic sensory organs, although there are approximately 1500 microscopic apertures in the chitinous exoskeleton that end in cellular clusters of a specialised nature. Approximately one half are used to detect heat, another third detect vibrations in the air, and the rest are chemical receptors that are tuned to 'smell' specific biochemical compounds, particularly those of its natural predator, the Xen Bullsquid.



Figure 1.3.2: Dr Malcom Betruger enjoyed the twin honours of being the first human to examine, and fall prey to, the *Caput Helica*.

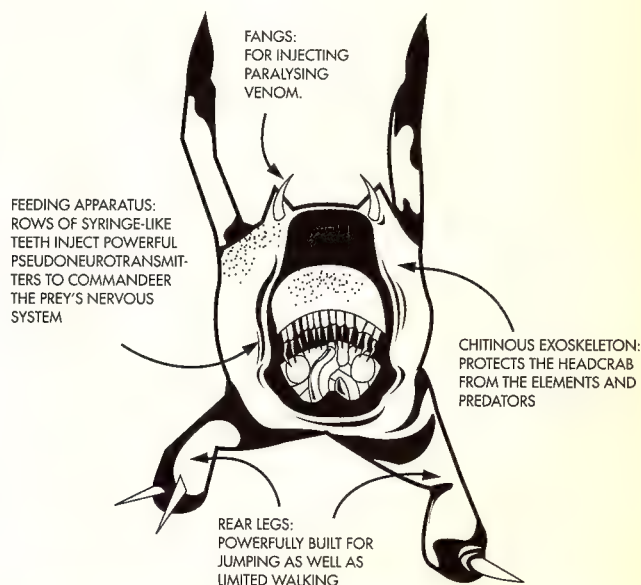


Diagram 1.2.1: Anatomical breakdown of the Xen Headcrab (*Caput Helica - Medius*) initially encountered by the Black Mesa Research Facility.



Figure 1.3.1: A rare glimpse of the Xen dimension, home of the *Caput Helica*. The iridescent, stalk-like organisms provide the world with illumination.

The rear legs are powerful for their size; articulation is restricted to contraction and extension, allowing the Headcrab to perform powerful jumps, although it can walk limited distances as well. When tested in the field, jumps up to seven metres long and three metres high were recorded. The front legs are more articulate, and end in hardened talons.

When it attacks, it attempts to hook into the prey's flesh around its far top and forward extremities, usually resulting in it landing on the head. Analysis has yet to determine why or how the Headcrab knows to target the head, although the results are evident. Once firmly attached, the Headcrab is difficult to remove, and will use its fangs to inject venom to paralyse the prey's nervous system. Then the powerful feeding apparatus delivers a penetrating blow using the row of syringe-like teeth.

Once attached to the nervous system, the Headcrab injects a number of complex chemicals and enzymes, many of which resemble neurotransmitters found in most animal species. The pseudoneurotransmitters establish a link between the Headcrab's and host's nervous systems whereupon the Headcrab takes over autonomic and motor functions of the parasympathetic nervous system of its prey. The enzymes then function to 'hijack' existing nervous tissue, destroying previously established axon pathways, and reconnecting them to the Headcrab.

The dormant nervous tissue inside the Headcrab then activates and through processes still undetermined, dynamically adapts to handle the sensory input from the host, as well as sending out signals to the motor cortex. At this point, the Headcrab enters the ternary phase of its lifecycle and turns the symbiotic host into a 'Zombie', with further enzymes serving to disrupt the host's genetic material, and mutating it with features from the *Caputis Helica*, such as talons. The Zombie will then attempt to feed, passing refined proteins to the *Caputis Helica*. Once enough sustenance has been derived from the host, and the *Caputis Helica* becomes too large to continue, it detaches, and hibernates to enter its quaternary phase (documented in report DD88641-D).

Xenomorph Facehugger (*Linguafoeda Acheronsis*)

Linguafoeda Acheronsis is an already well documented species (see reports HD22163, BW4412 and DD3916). Like the *Caputis Helica*, the Xenomorph species has a quaternary life cycle, with the Facehugger having a similar role to the Xen Headcrab. From documented encounters with a Xenomorph hive, it appears as though the Xenomorph has a similar social structure to many Terran insect species, such as *Tetramorium rhenanum* or *Apis mellifera scutellata* Lepeletier.

The Facehugger itself is endoskeletal, endothermic, and has a fairly basic but specialised anatomy. Like the Headcrab it also doesn't have any apparent sensory organs, but instead relies on a sensitive motion and vibration sense. Unlike the Headcrab, the Facehugger is only one discreet stage in the development of a full-grown Xenomorph. It is the vehicle to deposit an adult Xenomorph egg into a host, then with its role finished, it dies within 48 to 72 hours of depositing its egg. As such, it contains no digestive system, making it even more robust.

Its skin is made of complex protein poly-saccarides, although it can excrete a

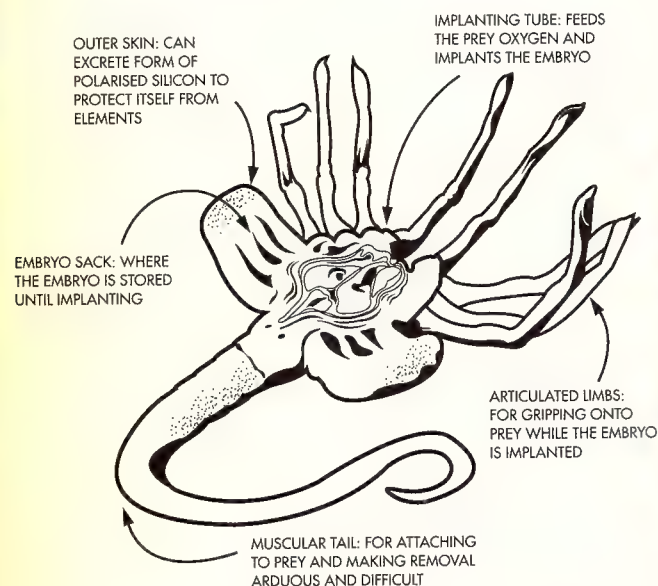


Diagram 1.2.2: Anatomical breakdown of the Xenomorph Facehugger (*Linguafoeda Acheronsis*) first studied by the special projects and research arm of Weyland-Yutani company.

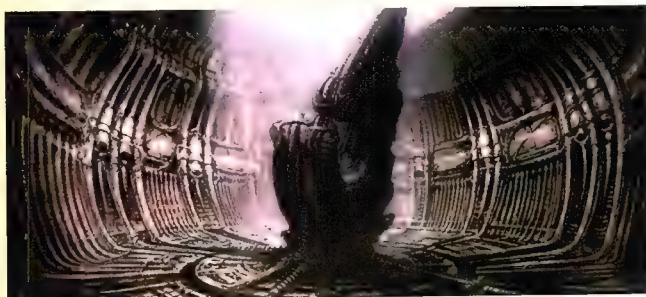


Figure 1.3.3: The original living samples of *Linguafoeda Acheronsis* were found in an abandoned alien spacecraft on the planet LV 426.



Figure 1.3.4: An artist's impression of the last stage of the life cycle of the *Linguafoeda Acheronsis*. Special attention should be paid to the extended oral appendage, which is equipped with an additional set of teeth.

form of polarised silicon to protect it from adverse environments. As an organism it is entirely devoted to delivering its egg into a host, and as such does not have any natural predatory capacity, beyond the aggression and speed necessary for it to perform its duty.

Typically, prey will be brought within proximity of the Facehugger's egg so that immediate coupling can be performed, although the Facehugger does have the capacity to seek its own prey and implant them with a Xenomorph embryo on their own volition.

The primary defence mechanism of the Facehugger is its very low pH blood. This blood closely resembles monomolecular acid when outside the body of the Facehugger, and is classified as a Type 1B corrosive. For this reason, the internal tissue of the Facehugger is of a very high pH in order for it to withstand the coursing of its own blood.



Figure 1.3.5: The Facehugger is compelled to seek out a compatible host during the first stages of its life cycle. Dr B. Hauer (left) was one such acceptable partner. Dr Bishop Weyland (above) is recorded as the first person to examine the alien in this state.

Comparison of applied utility

Sections XII through XVI at the end of this paper detail the performance of each organism in simulated military environments. The summary of that research indicates the Headcrab is the superior organism for application of discrete force against a target. However, the latter life stages of the *Caputis Helica* are less capable than their Xen counterparts.

The Facehugger is less effective as an isolated organism, although its natural defences make it difficult to eradicate an infestation before a significant proportion have implanted Xenomorph embryos. As such, when taken as a whole, the Xenomorph is the preferred and recommended species for continued and focused research.

Given that, the authors of this paper cannot stress strongly enough the need for exercising extreme caution when studying either of these species, especially the Xenomorph. During the compilation of this report, we lost three research assistants, one experienced professor and several score test subjects of different species when attempting to manage or control Xenomorphs at different phases in their lifecycle. The species is certainly not to be underestimated, and the potential collateral damage from their use may ultimately preclude any possible military application.



VENGEANCE REIGNS FROM ABOVE.



Coming October 2004



PC
CD-ROM
SOFTWARE



**VIVENDI
UNIVERSAL**
games



SIERRA™



Soar into Battle

Jetpack, ski and pilot your way through the most savage battles on land and in the air.



Extreme Multiplayer Action

An online tactical warfare experience for up to 32 players that features challenging new battle games and all-new team strategies.



All-New Weapons and Vehicles

Blast the opposition with devastating new weapons like the Rocket Pod and new vehicles like the powerful Assault Tank.

www.tribesvengeance.com

Tribes is back with a vengeance. The ultimate high-flying, multiplayer FPS battle experience returns with deadly new weapons, faster and more versatile flight, in-depth strategic team action, and the first-ever Tribes single-player campaign.

TRIBES

VENGEANCE

Destruction. Chaos. Retribution.

making their mark

Futuremark's latest will set a new global benchmark for GPUs. James Wang reveals the engine that will bring them to their knees.

BACKGROUND: This screenshot shows the next generation water shader at its best. It does both realtime reflection and refraction, and some very nice ripple and wave animation. It also has a depth effect. As an object goes deeper under the water surface, it gets darker and more blurred using a depth fog effect.

Surreal. That's 3DMark05. You won't find any DirectX 7.0 tests here – these are the real goods; DirectX 9.0 gorgeousness crashing and pouring out of your screen through a torrent of pipelines and pixels. Ever since the first version of 3DMark arrived in 1999, watching these images roll by has become a favourite past time for many of us. Although the first version started with the primitive DirectX 6.0 API and equally ancient hardware, it produced graphics so pretty that gamers went out and bought a copy. If all goes well, 3DMark05 will once again lure gamers en-mass to its imaginative imagery.

3DMark2000, without a doubt the most comprehensive DirectX 7.0 benchmark ever produced, was what hurled the Finnish developers from Futuremark (then MadOnion.com) into the spotlight. When it was released in 2000, everyone had a copy. It didn't matter if your PC was built with a then state of the art GeForce 1 or a celery broccoli combination (that's Celeron with Integrated Graphics for the uninitiated), it only mattered that you could run 3DMark. High end systems earned the bragging rights while low end systems finally found a reason to upgrade. The lengths that one would go to see multitextured boxes and perhaps hardware Transform and Lighting!

Their next product was an even bigger hit. Loaded with pixel and vertex shaders, environment bump mapping and the ever so beautiful *Nature* test, 3DMark2001 reached cult status almost overnight. A follow up 'Second Edition' brought new shader tests using pixel shader 1.4. Imitation products from competitors soon came but were just as quickly forgotten.

To appreciate 3DMark05, one has to look at Futuremark's fourth and current release, 3DMark03. Up until 03, the engine used to create 3DMark has been the MAX-FX engine from Remedy entertainment originally created for Max Payne. With DirectX 9.0 though, multitexturing went out of favour and shaders became the central element. The aging MAX-FX

engine wasn't designed with this in mind and the decision was made to start over with a new engine bred for DX9.0 shaders. The end result was 3DMark03, a well received benchmark that didn't however blow away the audience in the same way as its predecessor. The major issue was that it didn't exploit the possibilities afforded by DirectX 9.0; out of the four tests, only *Mother Nature* used DX9.0 features. At the time, DX9.0 hardware sales had not reached critical mass. Now DX9.0 has trickled its way down to the mainstream, the developers of 3DMark are finally making the benchmark that will have today's DX9.0 cards struggling under the strain and begging for release. Just the way we like it!

Bear in mind: if your card doesn't support pixel shaders 2.0 or higher, don't bother with 3DMark05. You won't find any half-assed DX8.0 tests here; every test will use DX9.0 features in one form or another. In fact, they are designed for the second generation of DX9.0 GPUs, those that support up to PS3.0.

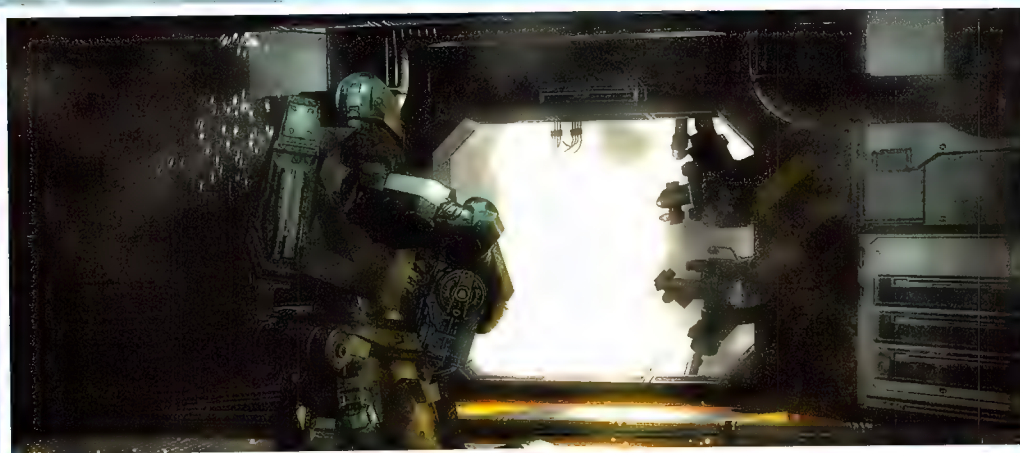
Shade 'em on the fly

The most radical change in 3DMark05 is the way shaders are actually created – a shader describes the relationship between a type of material and a type of light. The problem is, everyone wants to see lots of shader effects and there is no shortage of material/light combinations. Skin lit with a point light is different if lit with a directional light. Ambient lit metal has different shader code to ambient lit marble. 'In an actual game with enormous amounts of graphics content, different objects with different materials and different shaders for all those, the total amount of shaders get completely out of hand and become very hard to manage,' says Patric Djala, the senior manager of benchmark development at Futuremark.

The solution they came up with is to automate this process and build shaders as they are needed. Although there are many material/lights combinations, a particular material will behave similarly (though not the same) for different types of lights. With a dynamic shader engine, you can write the shader once and let the engine generate the different versions of the shader for different lights. Based on what the artists specify, the engine can even create shaders on the fly. Patric explains: 'Our solution is to procedurally make only the shaders that are needed for rendering the next frame. If a new material appears in the next frame, we make a shader for it, but no sooner than that. This way the code and content is easier to manage, and the rendering engine is more flexible.'

Away with phoney Phong

While 3DMark03 used mostly DX8.0 level shaders, 3DMark05 has really cranked up what DirectX9.0 can do. Materials are significantly more complex, and where appropriate, previous hacks have been replaced with more robust solutions. 'Many of the materials do Blinn-Phong shading or some modification of it.



ABOVE: Besides the large particle amount (tons more a second ago when the door ahead was blown away), this screenshot from Game test 1 shows some nice metal materials on both the armour of the soldier and the very specular floor. The metal materials do Blinn-Phong shading.

Finally the hardware is capable of rendering this kind of material on all surfaces in a scene, and they don't have to be substituted with poor approximating lighter shaders. Many of the 3DMark05 pixel shaders fill PS2.0 to the limit.'

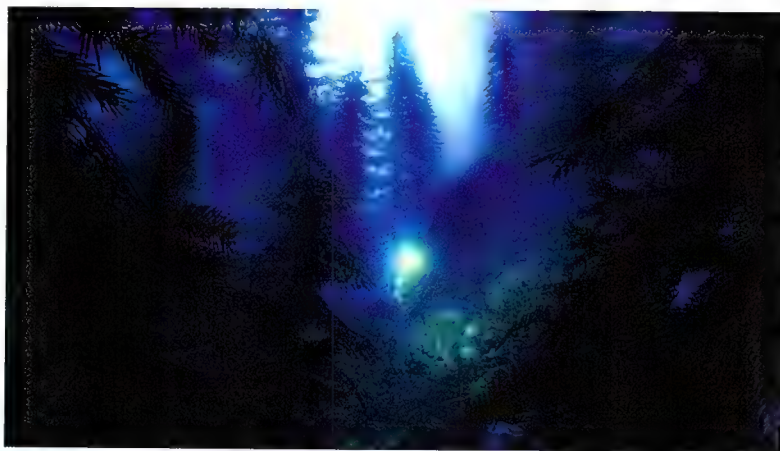
One particularly interesting shader is atmospheric scattering. In today's crop of outdoor games, nothing is really done about rendering the atmosphere. Almost all games use a cheap skybox that is really just a big texture slapped over the world. Being a simple texture, it has the same kind of look as all other plain textures in the world, which is hardly convincing. Better engines may implement fog and animated alpha textures. These improve the situation somewhat but are hardly the best solutions. To achieve a sky with an airy, hazy and moist look, you have to simulate the light as it scatters in the atmosphere.

3DMark05 is probably the first non-academic demo to use this technique and the results speak for themselves. A scene with a moonlit night shows a soft diffused aura around the moon. And it isn't the sort of shine you can fake with a texture; the sky glows softly and the air seems laden with moisture. Although the end result is subtle, it's a huge leap from the traditional skybox. As good as the current batch of image rendering techniques is, to obtain correct results for some reflections, you *have* to use raytracing. Interactive raytracing has already been shown to work on the GPU. We wondered if the next 3DMark would move in this direction. Patric doesn't seem to think so. 'I think we need some really strong indications that the game industry has immediate plans to switch to raytracing before we start considering that for 3DMark. It would be interesting to try realtime raytracing, but until there is a good enough reason to do that, we'll stay away.'

Maps of shadow

Inspired by Doom 3's technology, 3DMark03 used the stencil buffer to generate dynamic shadow volumes. This technique works great for indoors and dramatic sequences but like the Doom engine, has its fair share of limitations. The CPU overhead is high, the shadows edges are hard and fillrate consumption is tremendous. The alternative of course is shadow maps, also known as shadow buffers. The beauty of this technique is that if done correctly they can render realistic soft edges even in huge outdoor environments.

3DMark05 will do away with stencil techniques and concentrate purely on the shadow map technique. It's rather amazing how quickly stencil shadows went out of favour; John Carmack, Tim Sweeney and the 3DMark developers are all using shadow maps in one flavour or another in their next generation engine. If shadow



ABOVE: Game test 2 is a nocturnal forest scene with a large amount of detail. Trees and the branches waving in the wind, rocks and debris on the ground, and procedurally distributed dense vegetation. Everything is dynamically lit with extremely high detail dynamic shadows.

Shading 101

First generation hardware transform and lighting was essentially the hardware implementation of the OpenGL rendering pipeline. It accelerated functions, but it didn't allow for much flexibility. This sparked a shift towards programmable shaders, powerful floating point processing units designed to make it easier for the coders to control the final image on a screen.

There are two kinds of shaders in the rendering pipeline. The first are called vertex shaders, and these deal with lighting and animation operations once scene geometry is set up. Vertex shaders were the initial focus for shader development in DirectX 8.0 level hardware.

Once the vertex operations are undertaken, the pixel shaders take over. Unlike vertex shaders, which can only operate on lines between points, known as vertices, pixel shaders process every dot that goes into the final image. This can be a variety of things, like determining reflections, normal mapping or complex lighting, or it can be used stylistically to do other operations like 'cel' shading or other post processing effects. The major focus of DirectX 9.0 hardware was on massive improvements to pixel shading.

It is expected that the next generation of DirectX, as well as Xbox Next, will do away with this vertex/pixel shader divide and create a multipurpose shading block that can be easily configured to do either kind of operation. The move to shaders has been a way of putting more and more computational power into the hands of game developers, and this shift to flexible shading units will allow developers even more freedom to create.

PJG

maps are that good, you may wonder why there are many different flavours. In fact, most of them are all trying to solve the same problem: resolution.

Here's how normal shadow maps work: suppose you're looking into a room which has an overhead light and a parked car. To generate shadow maps, the engine first switches its view to the light's view, looking down at the car. It then renders what it sees into a buffer. This is called the shadow buffer (or map) and each pixel here says how far the light can see before being reaching some object. The reason why we want to see what the light is seeing is that it tells



GPU Pixel shader support level	
PS 1.x	PS 2.0 +
GeForce 1 - 4	GeForceFX range
RADEON 7500 - 9200	RADEON 9500 - 9800
Matrox Parhelia	RADEON X300 - X800

us which objects are blocking which in the light's view. This gives us the crucial information needed to generate shadows.

Having rendered this shadow map (a grey scale texture) the engine quickly switches back into the player's view where it commences normal rendering. As each pixel of the player's view is rendered, it is compared with the value in the shadow map. If for example, according to the player the steering wheel is 5m from the light and checking the shadow map that point turned out to be 4m away, something 4m away must have blocked the light from reaching the steering wheel (probably the roof in this case). The algorithm goes through the motions and checks each pixel in the player's view versus the light's view. If the distance of an object in the light's view is less than that seen from the player's view, something is blocking the light and that part falls inside a shadow.



ABOVE: The rock surface, the sea monster skin and a next gen water shader seen in this Game test 3 screenshot all fill up PS2.0 to the limits. The sky does a realtime atmospheric light scattering.

The above description is the simplest of shadow map implementations and in practice, looks pretty awful. The problem is when the scene is rendered from the light's view, because even the highest resolutions can't capture all the shadow details. If the player moves closer to the shadow, resolution needs to increase dramatically to prevent aliasing to appear.

Thus 3DMark05 puts significant energy into optimising shadow maps. Two methods are employed to improve resolution and prevent aliasing: perspective shadow maps and Percentage Closer Filtering. Perspective shadow maps solves the problem that shadows close to the viewer need to be much more detailed by generating perspective biased shadow maps dynamically, depending on the viewer's position. A projection increases resolution where needed and in 3Dmark05 the developers worked hard to make the solution foolproof. 'Perspective shadow maps work both in narrow corridors and enormous outdoor landscapes. There is no direct limitation on how detailed the objects in the scene can be, and these shadows work also for alpha mapped objects,' says Patric. This method gives good shadow map resolution but to prevent aliasing, you must sample the shadow map correctly. Using hardware support Percentage Closer Filtering compares multiple samples before blending. This outputs a result that reveals the percentage of the pixel that's in the shadow rather than just in or out. With enough samples, soft shadow regions can be simulated.

Looking to the future

Futuremark is proud to say that 3DMark05 is more like a game engine than its predecessor. '3DMark03 used basically two different engines, so some features were only available in one or the other,' says Patric.

The new release will see a unified engine where each feature of each test is available under the one roof. This is exciting for many reasons, not least the prospect of actually making a game with the 3DMark05 engine. For the time being, this is unlikely to happen. 'Licensing a 3D engine is a very different business than what we have done so far and what we plan to do in the near future. The company structure would need to be significantly changed, and quite a sizable support department would need to be founded for the licensors of the engine for example.'

The goal of 3DMark has always been to forecast future game engines. It is the one piece of software that enables testing for future performance rather than showing how things work today. After the controversy over 3DMark03 it is refreshing to see that the next release predicts two major trends spot on. The first is the move to dynamic shader compilation and generation. Just like how no one today bothers with DX8.0 assembler, no sane developer will manually manage thousands of shader materials. In the future, the vast majority of shaders will be built procedurally at run time. The second is the move to shadow maps. Everyone agrees on this and Pixar's films show that this is the way to go. As for all the rest, only time will tell.



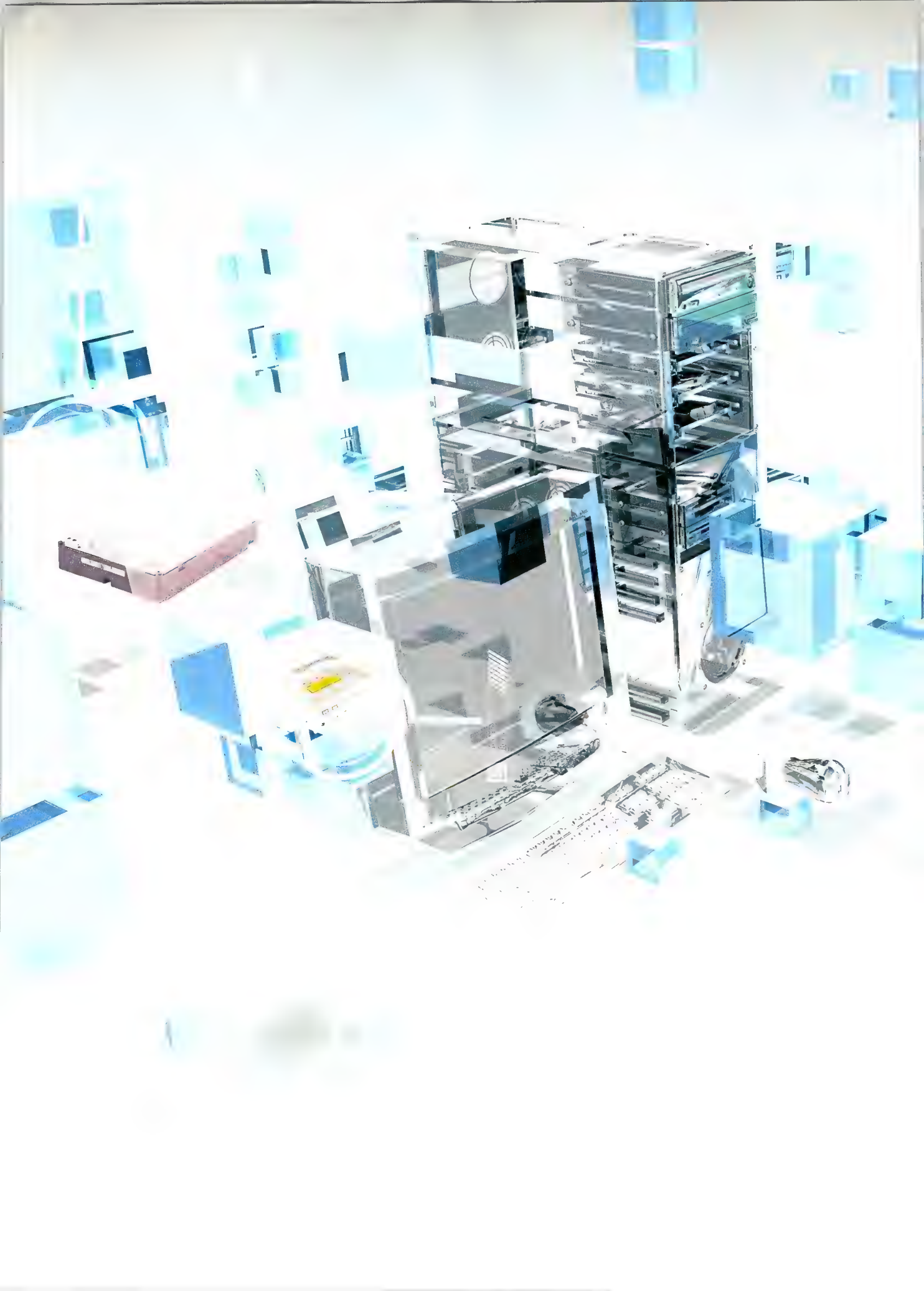
Engine features:

Totally new shader/material engine

- ☐ Dynamic shader compilation
- ☐ Dynamic shader code generation

Soft shadows using Perspective Shadow Maps

- ☐ Percentage Closer Filtering for smooth edges
- ☐ Correct shadows through transparent geometry
- ☐ Realtime atmospheric light scattering
- ☐ Realtime water using PS2.0
- ☐ Reflection
- ☐ Refraction
- ☐ Ripple & wave simulation
- ☐ Depth simulation





Reviews



Quantum cryptography and communication

Securely entangled, Nathan Davis is spooked at the future of networking.

Security – this is the paramount concept to networking, even though one of the golden rules of networking states that where there's data movement, there is a lacking in security. To reduce the likelihood of an unwanted party having access to sensitive information, we have relied heavily on the use of data encryption. The problem is that current public encryption methods are relatively weak, breakable and open to unnoticed attacks. There is a need for a new level of secure data transmission.

Enter the quantum world. It's a nasty subject to get into, because you have to toss everything you already know about local realism and 'classic' physics right outside a freaky, dual-state window. Without digging too deep, the phenomena known as 'quantum entanglement', mixed together with its subdivision of quantum cryptography, are being researched to change the computing world.

Entanglement is the quantum effect – or channel – that makes a bizarre variation of teleportation possible. Einstein is renowned for referring to it as 'spooky action at a distance', because it is the instantaneous interaction between two separate objects in space, in spite of the distance between them. Einstein and several others never liked entanglement (Google 'EPR paradox') because it stepped on the toes of the theory of relativity.

Relativity states that information can't be transmitted faster than light. This partially holds true, because on their own, an entangled pair can't transmit any *useable* information between them. This considered, the pair can still interact with each other without any evident middle ground. In order to transmit something useful, they need to be used in conjunction with a classical channel – a medium that can be used to transmit classical information such as light or electricity – and this is known as quantum teleportation. Unlike 'Beam me up Scotty', the original matter must be destroyed in

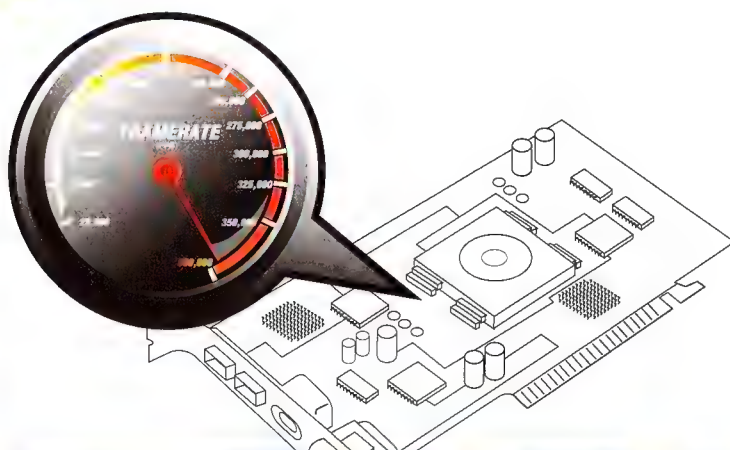
order to be recreated at the target point, but more on quantum teleportation some other time.

The other effect I mentioned, quantum cryptology, is just as remarkable. This combines the information-transferring abilities of a classical channel and the forces of the quantum channel. This key exchange could possibly solve the key negotiation problem and provide a superior alternative to the Diffie-Hellman key exchange cryptographic protocol, currently in widespread use. It relies on a key negotiation 'handshake' to be communicated over an unsecured connection and the key itself isn't exchanged. Even though it is complicated to crack, it's not impossible.

The underlying idea for quantum key exchange uses the rough properties of light to transmit an unintelligible image – usually through a series of photons polarised to a particular state. This image complements a secret key and the ability to 'decode' this image depends on knowing how it was made. If this transmission was intercepted it would destroy its quantum state and alert the users. However, there is still the theory that this can be cracked into, because if a laser misfires extra photons, they could be tapped by an intruder to break the encryption – without detection.

Separately, there is an encryption method conceived for quantum computers based on cryptanalysis – code breaking – but this is still entirely theoretical. However, it's a good thing that network security starts using quantum tactics before computers do, because if the cryptanalysis theory turns out to be real, this would pose major problems on existing network infrastructure. Supposedly, if a quantum computer were to be built, it could brute force one of today's keys almost instantly.

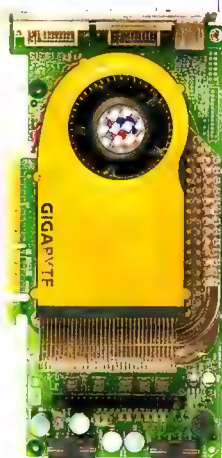
Crackers aren't messing with the laws of quasi-physics yet, but will they in the future? You bet.



Framerate

Enjoy our rigorous testing with your monthly Framerate feed.

Gigabyte 6800 Ultra



Specifications: NVIDIA GeForce 6800 Ultra; 256MB 256-bit GDDR3 RAM; 400MHz dual RAMDACs.

Core speed: 400MHz
Memory speed: 1100MHz
Price: \$1049
Supplier: Synnex

www.synnex.com.au

The 6800 Ultra chip is currently the most powerful beast on the market in terms of both spec and actual testing – this card is testament to that. Sitting relatively quiet in terms of noise, it won't be pulsating your ear drums to pump out graphics goodness over the incredible 16 pixel pipelines. If you're in the market for a premium performance solution with a matching tag, but can't afford a wallet stretching, bank account maiming two 6800 PCI-E cards in SLI, this Ultra chip will definitely keep you gleefully satisfied.

Gigabyte X800 XT Platinum Edition



Specifications: ATI RADEON X800 XT PE; 256MB 256-bit GDDR3 RAM; 400MHz dual RAMDACs.

Core speed: 520MHz
Memory speed: 1100MHz
Price: \$1079
Supplier: Synnex

www.synnex.com.au

As with all of ATI's mid to high end cards, half the size in girth and much quieter than a standard designed 6800 Ultra, the superficial benefits are immediately obvious. Equipped with sixteen pipelines, it's like the X800 XT only with a core and memory clocked slightly higher. As with the majority of chips today, clock speed hasn't helped the lack of Shader Model 3.0, but their benefit is small, quiet and powerful – and it trades benchmark wins with the 6800 Ultra. Plus, this one *brings* the blue bling LEDs.

Albatron Trinity 6800



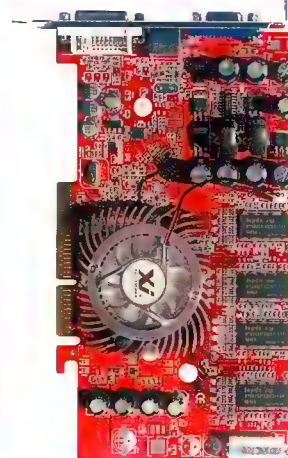
Specifications: NVIDIA GeForce 6800; 128MB 256-bit DDR RAM; 400MHz dual RAMDACs.

Core speed: 325MHz
Memory speed: 700MHz
Price: \$565
Supplier: AMI Computers

www.ami-computers.com

As if to impersonate Throbulator from Invader Zim, this card had us yelling 'YEEOW, MY HEAD!' with hands pressed firmly against our ears. This has speed control which clicks in after POST, but it's rip-snoingly loud even when displaying the 2D desktop. That aside, for a next generation mid range card that beats a 9800 XT, considering it has four more pixel pipelines and uses Shader Model 3.0, it's right up there as a top buy. Great cooling, but just watch out for those ears.

XpertVision RADEON 9800SE



Specifications: ATI RADEON 9800 SE; 128MB 256-bit DDR RAM; 400MHz dual RAMDACs.

Core speed: 380MHz
Memory speed: 250MHz
Price: \$220
Supplier: Altech

www.altech.com.au

As with this card, 9800 SE cards are dropped back 9800s – four pixel pipelines are switched off. This is for a reason, because they can be turned back on via software, using Softmod, and this card has apparently a high success rate. From simply turning these back on, it leaped to 61.4fps in CoD, but there was a small block of 'stuck' pixels in 3D environments. If you are willing to take your chances, you may reel in a goldie, otherwise you'll still going to have a fully capable card on your hands.



ADSL BROADBAND *Unlimited*



256/64k BROADBAND ADSL

\$29⁹⁰*

PER MONTH

FOR THE FIRST THREE MONTHS

- NO DOWNLOAD LIMITS
- ABILITY TO USE TELEPHONE WHILE CONNECTED
- STATIC IP ADDRESS
- INCLUDED BACK-UP DIAL-UP ACCOUNT
(When your ADSL is not in use, call charges will apply)
- 10 PERSONAL E-MAIL ADDRESSES

1800 00 86 36

www.**dodo**TM.com.au

Credit Cards only. Connection fees apply.
Modem and Line Filters may be required.

Exclusive Offer to Atomic readers:

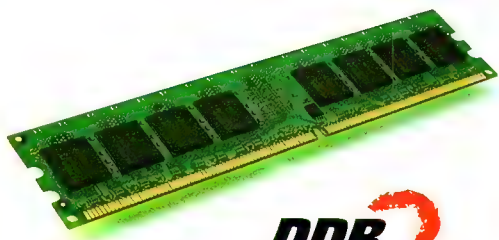
\$50 off all broadband connection fees when you
mention this ad or visit <http://atomic.dodo.com.au>

* No locked in contracts apply with this offer.



**COMMITTED
TO MEMORY**

100% tested | quality components | lifetime warranty



DDR2

The Future is Here with Kingston DDR2 Memory – the new frontier

The new DDR2 memory has technical enhancements to increase memory efficiency and timing margins, resulting in faster speeds, higher data bandwidths, lower power consumption and greater thermal performance.

As the DDR2 technology evolution begins, depend on Kingston to deliver quality memory that is compatible and reliable.

To learn more about DDR2 memory, call our authorized distributors or visit our Web site at www.kingston.com/asia

 **simms**
1800 800 703
www.simms.com.au

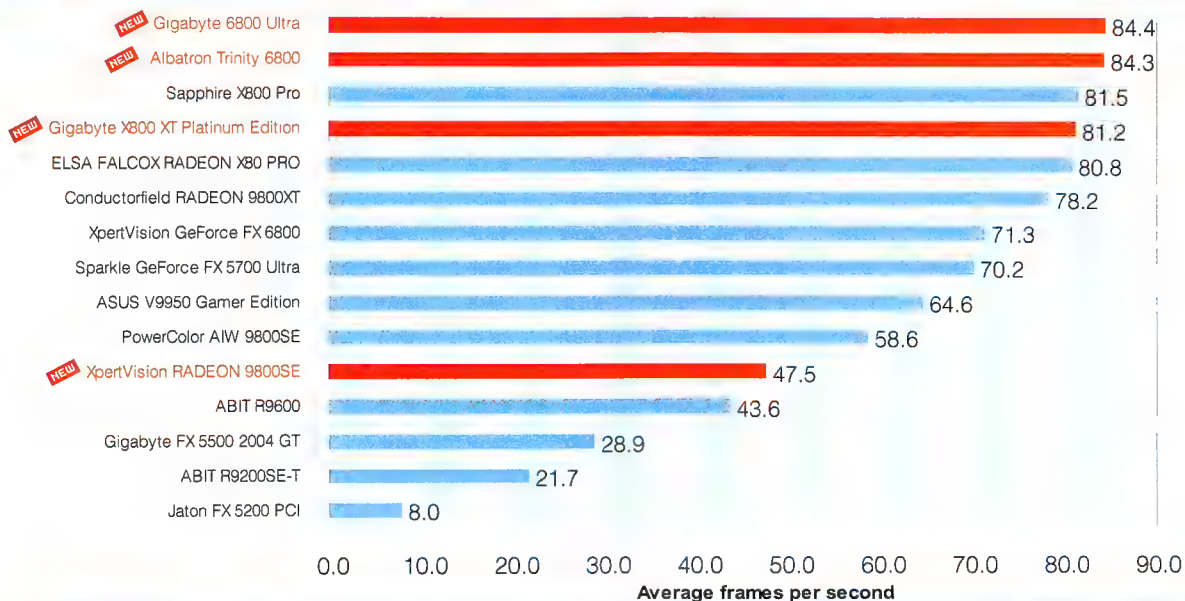
 **SYNNEX**
1300 880 038
www.synnex.com.au

Kingston
TECHNOLOGY
Value RAM

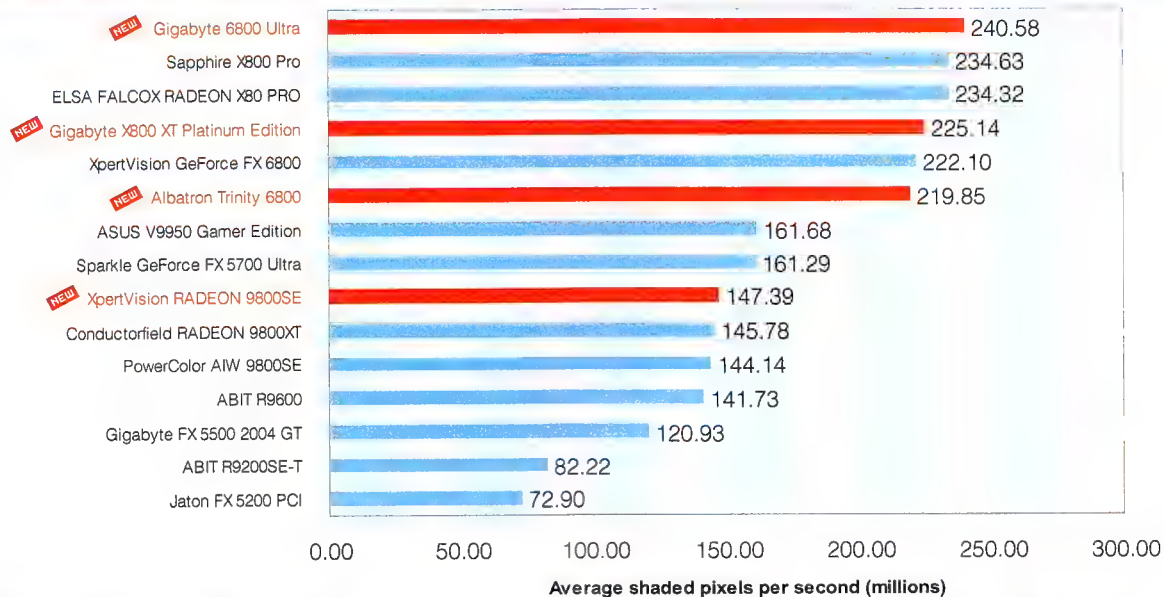


© 2004 Kingston Technology Company, Inc. 17600 Newhope Street, Fountain Valley, CA 92708 USA (714) 435-2600 Fax (714) 435-2699. All rights reserved. All trademarks and registered trademarks are the property of their respective owners.

Call of Duty



AquaMark3



Video cards

Quakecon marked the paper birth of the GeForce 6600 and 6600 GT cards. These new mid range native PCI Express offerings from NVIDIA are eight pipeline Shader Model 3.0 cards with 128-bit memory buses. But what is even cooler is that the higher end 6600 GT cards will support SLI technology.

Rumours are now abounding that ATI will soon announce a competing product based upon the 0.11micron fabrication process it adopted for the X300. This product would most likely be called a RADEON X700 and would be an eight pipeline replacement for the somewhat average 9600 based X600 cards.

ATI has also started to get its new low end RADEON 9250 cards into the marketplace. Unlike the DirectX 9 supporting X300 PCI Express cards, the 9250 is based upon a four pipeline DirectX 8 architecture.

CPUs

It's crazy price slashing season in the CPU world as the awkward early days of new socket change continue. While not much else is happening on the desktop at the moment, AMD has finally announced its first 90nm CPUs for notebooks.

These low power Athlon 64 CPUs are made at AMD's FAB30 in Dresden, Germany. In order to enable 90nm semiconductor production AMD has used IBM's Silicon On Insulator (SOI) technology as well as new fabrication technologies.

In the press release about its 90nm production AMD also pointed heavily towards a move towards dual core CPUs next year, something which Intel is also focusing upon. We are yet to see any dual core implementations, and these will most likely first appear in the server based Xeon and Opteron CPUs before eventually flowing into the mainstream processor lines.

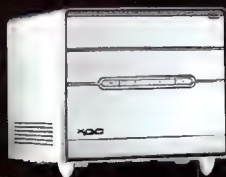
Play the best!

Get a grip on your digital life, the XPC delivers a winning combination of performance, style and flexibility. Ideal at home, the office or school, the XPC puts the latest technologies on your desktop at an affordable price. All the power in one-third the space — The Shuttle XPC.

www.shuttle.com

SB8365

- > Intel® Pentium®4 / Celeron® D (Socket 775) CPUs
- > Silent X: 250W PSU, ICE module, Active airflow
- > Intel® 915G + ICH6-R chipset
- > x16 PCI Express interface, Intel® GMA900
- > Serial ATA with RAID (0, 1)
- > FireWire® 400, USB 2.0, SPDIF, Gigabit LAN



SATO Technology Pty Ltd
www.satotech.com.au
E-mail: albert@satotech.com.au

Silverwater, NSW
TEL: (02) 9748 2999 FAX: (02) 9737 0777

Box Hill South, Vic
TEL: (03) 9899 6333 FAX: (03) 9899 0200

Osborne Park, WA
TEL: (08) 9244 8688 FAX: (08) 9244 2280

Launceston, TAS
TEL: (03) 6334 5050 FAX: (03) 6334 5051

MANSFIELD, QLD
TEL: (07) 3849 2299 FAX: (07) 3849 2281

Bowden, SA
TEL: (08) 8241 7519 FAX: (08) 8241 7987

We create

AMD Sempron 3100+

John Gillooly becomes a Sempron fiend.

Supplier:
AMD
www.amd.com

Website:
AMD
www.amd.com

Phone:
N/A

Price:
N/A



Budget CPUs have served enthusiasts well in the past. From the first days when the Celeron 300A kick-started a little trend called overclocking, to the initial spurt of gaming goodness delivered by AMD's Duron, cheap has not always meant crappy. Sure, Intel's more recent efforts like the crippled Willamette that became its first Pentium 4 Celeron have been woeful, but we

cores and Athlon 64 derivative Socket 754 ones. AMD also plan to eventually launch models for the newer socket 939 motherboards.

In the current range only the Sempron 3100+ uses the Athlon 64 architecture, so it is this that we have chosen to focus on. Even though it uses the same basic 130nm SOI core as the Athlon

64 has a 2GHz core.

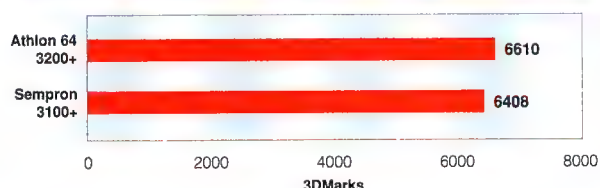
Unfortunately there are no desktop Athlon 64 CPUs running at 1.8GHz.

Our testing started with PCMark04 and SYSMark2004, both of which showed a healthy performance lead by the Athlon 64. But these benchmarks emphasise work related tasks,

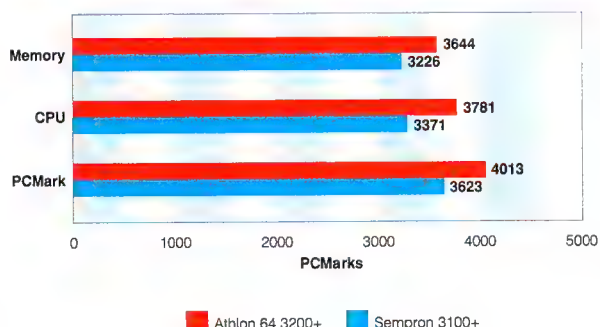
Specifications:

1.8GHz 130nm SOI Socket 754 CPU; 128KB L1 cache; 256KB L2 cache; 64-bit support disabled; integrated heatspreader.

3DMark03



PCMark04



still have faith in budget CPUs.

Since AMD launched the Athlon 64 its once top end Athlon XP processors have settled into the budget niche, but AMD has now begun to phase out these CPUs, and in its place has announced the Sempron. Sempron is a class of budget CPUs that spans both Athlon XP derivative Socket A

64, it has some key differences. The first is a lack of 64-bit support, which could be seen as dramatic in terms of longevity, but the reality is that Windows XP 64-bit is not due until sometime next year. The other key difference is cache. While Athlon 64 CPUs mainly use 1MB L2 cache (some have 512KB), the Sempron 3100+ has 256KB of L2 Cache.

The effect of cache upon performance does depend on the CPU architecture, and from our previous testing of the 512KB cache Athlon 64 we were surprised to see that the halving of cache didn't make a huge difference in performance. The fact that the Athlon 64 architecture moves the memory controller onto the CPU has been the major performance booster for these chips, and they do not appear as cache hungry as Intel's Pentium 4 processors.

To see how the Sempron 3100+ performed we tested it using our Athlon 64 testbench, and put it up against an Athlon 64 3200+. This is not a true apple to apples testing however; the Sempron has a core speed of 1.8GHz, while the Athlon

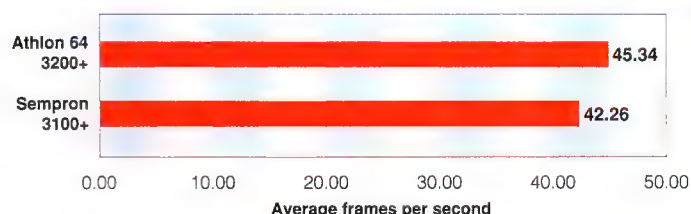
rather than gaming, so we threw Doom 3, AquaMark3 and 3DMark03 into the mix to see whether game performance followed the same trends.

While the Athlon 64 was faster, the gap was slighter. In Doom 3 for example there was less than two frames difference between the two processors, and similarly tiny differences appeared in both 3DMark03 and AquaMark3.

So it appears that while it is certainly slower than the Athlon 64, the socket 754 version of the Sempron still performs very well, especially in game. A large part of this advantage is down to the on-die memory controller, something that the other Socket A Sempron models lack.

Considering this and the fact that Socket A is an evolutionary dead end, there is no doubt that the Sempron 3100+ is an astonishing budget CPU. It's been a while since the low end of the market gave us something like this, so thanks AMD for reinforcing the fact that 'budget' doesn't have to mean 'cheap'.

AquaMark3





THE ULTIMATE VISUAL EXPERIENCE



Desktop



Integrated



Mobile



ati.com



Gigabyte 3D Rocket Cooler Pro

Supplier:

Synnex
www.synnex.com.au

Website:

Gigabyte
www.gigabyte.com.tw

Phone:

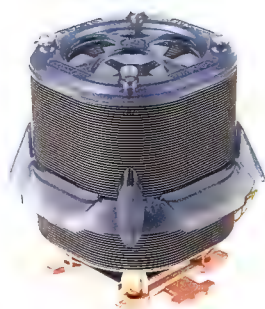
Synnex
1300 880 038

Price:

\$65

Specifications:

Heatsink/fan for Socket 478/A/940/939/T; high density polished copper base; four copper heat pipes; speed controlled dual ball bearing fan; fan range from 2500rpm to 4000rpm.



Relatively new to cooling, Gigabyte has definitively slammed its position as one of the best manufacturers in this sizeable market.

Set on perfection, they've launched the Rocket (heh), which is based around the same design as the original aluminium 3D Cooler. Much lighter than it looks, weighing in at 500g, it has even more aluminium fins – so it's a smidgen taller – and there's now a thick ring of channelled plastic just below halfway. This 'gill' is attached over an opening of about fifteen fins.

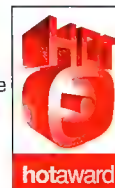
There's a sheet of thin plastic film blocking what seems to be the intake. It may initially look like packaging gone mad but surprisingly, this design is intended – not to mention effective.

The way this heatsink works for heat transference is still the same – with four copper heatpipes leading up through the aluminium fins – but the dissipation is changed. Rather than drawing air in from the top and pushing it out through the fins, air is sucked in through the fins and blown out via the gill.

Apparently the main concept behind this was to reduce the temperature of the components surrounding the CPU. It keeps the air moving over the heated capacitors, but the stunning thing about this is demonstrated best at maximum speed. Spinning at 4000rpm, the only audible noise is the muffled sound of whooshing air. Capping off the top was an effective measure to reduce the racket.

Temperature-wise, we fired up Chernobyl at 80W with the Socket 478 adaptor in an ambient room temperature of 23°C. Spinning at max, it returned to a cool score of 39°C and for its slowest (2500rpm) speed spitting out a very respectable 46°C for silent cooling. In comparison the fantastic, yet much louder 3D Cooler Ultra also returned to 39°C at its max speed of 5000rpm and 49°C at the slowest setting of 2000rpm.

Gigabyte has remastered what seemed to be the Holy Grail of HSF coolers. Extremely low on noise and high on heat removal, if you're after the ultimate heatsink/fan, consider this beast. It's a blast.



9.5/10

Thermalright Thermalright XP-120

Supplier:

PC Case Gear
www.pccasegear.com.au

Website:

Thermalright
www.thermalright.com

Phone:

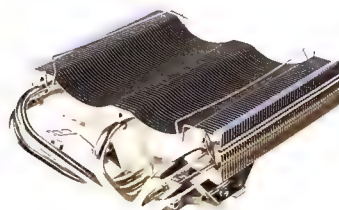
PC Case Gear
(03) 9584 7266

Price:

\$129

Specifications:

Socket 478 heatsink with clips suited for 120mm fans; five heat pipes; 370g weight; fan vibration dampener strips; syringe thermal goop.



Thermalright have been in the cooling business for quite a while and really know how to engineer awesome heatsinks, particularly those made for silent performance. This one looks sassy and walks beautifully along the same path.

Having drooled over the pipe-tastic design, we clipped it onto Chernobyl in an ambient room temperature of 23°C running at the usual 80W with the Socket 478 adaptor. The retention mechanism used to clip the Socket 478 version onto the CPU clip was a minor negative we came across. It's a little more difficult to attach

and detach than usual, requiring a relatively strong degree of force, however in the long run this is a good thing as this means the base has a firm contact with the CPU.

It doesn't come boxed with a fan, Thermalright instead opting for the buyer to grab a fan 'of their choice', which sucks slightly considering the price. We popped on a 'super silent' 120mm fan that's capable of spinning at a max of 2000rpm whilst moving 30.6ft³ per minute. At this setting, the XP-120 – what we've now discovered to be another top heatsink – spat out an impressive 41°C. Not quite as cool as the Gigabyte heatsink above, but its prime use is for extreme silence. To really test things out, we dropped the speed of this fan to about 1000rpm and it didn't peak higher than an impressive 46°C. This created a level of peace rarely experienced in the labs.

Running with no fan – well, just don't do it. As we've said incessantly, air cooling requires the movement of air. Nothing has changed. With no fan attached, this demon rocketed above 95°C – this is where we chickened and pulled the plug.

A little pricey, particularly considering it isn't equipped by default with a fan and only supports one or another platform (with a KB version also available). Bar the fan, weighing a meagre 370g and holding up exceptionally well in performance – if you can afford the tag it'll quietly kick arse to own one of these for a silent system.



9.5/10

Active Cool AC4G-D

Supplier:
PC Case Gear
www.pccasegear.com.au

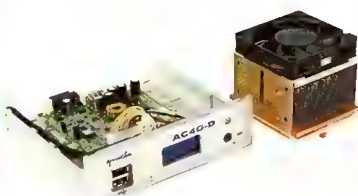
Website:
Active Cool
www.activecool.com

Phone:
PC Case Gear
(03) 9584 7266

Price:
\$125

Specifications:

Peltier cooling unit for Socket 478 (separate unit for K8); uses 72W system power at peak CPU load; copper base; soldered aluminium fins; weighs 500 grams; 2 x USB pass through.



Many manufacturers have tried to get thermoelectric cooling units into the PC, but have failed dimly because of the lack of available power and poor design. The amount of heat that can be removed is directly relative to the current flowing through the cooler, and there is not enough of that in PCs. Another problem is the need to protect against condensation, something not many people are eager to risk their systems over.

This unit allays both power and condensation concerns, using 72W of PSU power, and all signs of condensation – to our great surprise – have been eliminated.

And all without the use of rubber insulation or grease to seal off the area from open air.

Using an inbuilt microprocessor, it monitors the CPU and ambient temperatures and controls the thermoelectric unit's copper plate temperature by adjusting the voltage supplied to both it and the fan. This is all done automatically, so you cannot exactly change the window where it alters the Peltier effect to keep condensation at bay.

You can, however, change the fan speed. The 5¼-inch bay controller allows two fan speeds – 'Cool' and 'Silent'. When set to Cool, the fan continuously spins at its *incredible* maximum speed of 2500rpm. Silent mode will have the onboard chip monitor the temperatures and decide how fast the fan should be spinning. The noise levels vary, but even on max they are insignificant.

Set to 80W in an ambient room temperature of 23°C, we tested the Socket 478 version on Chernobyl. It returned a decent score of 48°C, and as 80W represents the CPU at 100 percent use, silent mode did not alter this. To give an idea of the performance difference between the two settings, we reduced Chernobyl to 50W. The cool setting gave out 29°C and silent levelled at 33°C.

If you are a thermoelectric CPU cooling system that works with any measurable degree of goodness, this would be the one. While there are better performing HSFs, finally here is a Peltier cooler we won't be able to mock.

ND

SCORE

8.5/10

Spire PolarStream

Supplier:
Altech
www.altech.com.au

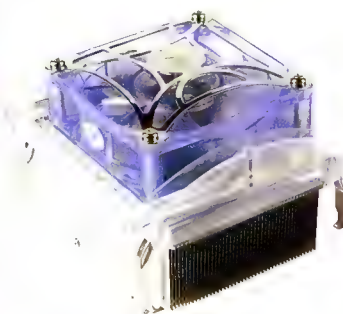
Website:
Spire
www.spirecooler.com

Phone:
Altech
(02) 9735 565

Price:
\$46

Specifications:

Socket 478 chromed all-copper HSF; 540g weight; syringe thermal goop; ball-bearing fan range from 2500rpm to 4200rpm; expansion slot fan controller.



With the heatpipe's marvellous entry onto the performance cooling market, back-to-basics high performing heatsinks are a rarity. Excusing the translucent UV reactive fan, the PolarStream is an uncomplicated, proven design, skimping on the flashing lights and sexy looks. Speaking of appearances, this weighty HSF unit does not hold a speck of Aluminium, instead sporting an all-chromed copper heatsink.

The installation manual isn't too clear, but thankfully the need for

direction is minimal, as it is similar in concept to the original Intel-designed Northwood HSF, but with one large lever instead of two.

We had a minor problem with one of the retentions that refused to stay clipped on, flicking off as soon as the lever was tightened. The curved end that grips onto the mobo anchor point was not arched enough. The trusty pliers soon fixed that. Once fully functional, this was seriously one of the easiest heatsink retention clips we've ever used.

So, we slapped it onto Chernobyl, again at 80W in an ambient temp of 23°C. Unfortunately the fan uses ball-bearings and for 4200rpm it is uncomfortably loud. At max speed, it spat out 42°C – not a score to shrug off, but it is too noisy. Winding it down to around 3700rpm, where it is a more acceptable, quiet whoosh of air, it delivered 45°C. To cut the sound

out totally, we dropped the fan to 2500rpm. This cooked up a swelter 54°C. Bad idea.

Aside from a warmer CPU, the resistor on the fan speed controller heats up a wee bit when the potentiometer is dialled down. Heat dissipation is expected for the excess voltage dumped but the level of temperature it gives off in this area is disturbingly high.

Admittedly, it puts up a reasonable fight to remove the heat but this heavy HSF is no beater of the mighty Gigabyte 3D Cooler range. Regardless, it still performs well enough at mid-speed. So long as it isn't running the hottest hardware, this would fit in a Home Theatre box.

ND

SCORE

7.5/10



GIGABYTE 8Σ Series

Fusion of Top Innovations



GA-8ANXP-D



- Intel 925X
- 8Σ
- U-Plus DPS
- Wireless LAN
- DDR2 533
- PCI-Express
- Dual Gigabit LAN
- IEEE 1394b
- Intel High Definition (HD) Audio

GA-8GPNXP Duo



- Intel 915P
- 8Σ
- U-Plus DPS
- Wireless LAN
- Duo DDR Design
- PCI-Express
- Dual Gigabit LAN
- IEEE 1394b
- Intel High Definition (HD) Audio

GA-8I915P Pro



- Intel 915P
- PX series
- 2-Ch DDR 400
- PCI-Express
- Gigabit LAN
- IEEE 1394
- Serial-ATA
- Intel High Definition (HD) Audio

For more information, please call our distributors:

Australia

N.S.W. HALLMARK: 02-9748-8811
SYDNEY: 02-9748-9800
RECTOR: 02-9748-7725
ADELAIDE HALLMARK: 08-8340-3740
DARWIN HALLMARK: 08-8881-9111
QUEENSLAND SYDNEY: 07-3902-6300

VICTORIA

HALLMARK: 03-9407-8855
SYDNEY: 1300-880-038
(TOLL-FREE)
RECTOR: 03-9561-6166
SYDNEY: 08-2204-5700
HALLMARK: 08-9477-5440

New Zealand

Itack Diamond Technology Limited
64-4-560-9100
Checksun New Zealand Limited
64-9-579-8832
Ingram Micro NZ LTD
64-9-574-2500

These speed settings are not guaranteed by GIGABYTE.
The specification and pictures are subject to change without notice.
All trademarks and logos are the properties of their respective holders.
Any overclocking is at user's risk, Giga-Byte Technology shall not be responsible for any damage or instability to your processor, motherboard, or any other components.

Upgrade Your Life™ www.gigabyte.com.tw

GIGABYTE
TECHNOLOGY

POWERED BY

SCORPION TECHNOLOGY



We are the
one stop shop
for all your
technology
needs.

check us out at
www.scorptec.com.au

YOU CAN FIND US... Here.



Mel ref. pg70, J12



FREE Bring this coupon
and get a free
SCORPTEC.COM.AU
MUG
for first time
customer
(limited to one per customer/pca/atm 00204)



Scorpion Technol
Unit 4/2, Garden Road, C
VIC
Ph: 1300 72
Fax: 1300 72
ICQ: 277
Email: sales@scorptec.com.au

Open: Mon-Fri: 10am -
Saturday: 10am -
Sunday: C

Shuttle XPC SN95G5

Supplier:
SATO Technology
www.satotech.com.au

Website:
Shuttle
www.shuttle.com

Phone:
SATO Technology
(02) 9748 2999

Price:
\$TBA

Specifications:

Socket 939; NVIDIA nForce3 Ultra 250 Northbridge; AC'97 (2.2) six channel audio with SPDIF in/out; Gigabit Ethernet port; AGP 8x; 32-bit PCI slot; USB 2.0; FireWire; two SATA 150 RAID ports; ICE heatpipe cooler.



Shuttle has a new shoe box on the market, but this black beauty is its very first incarnation of a Socket 939 Athlon 64 mini barebones system. Equipped with the sturdy nForce3 250 Ultra, this SFF box is deceptively tiny for the potential power within, with a face measuring 20cm by 18.5cm extruding to a mere 30cm. So incredibly small, only shoes imported from exotic dancers in Nanjing would fit inside. Keeping that in mind, did Shuttle manage to flesh out this system enough?

There are the usual goodies such as six channel audio (AC'97),

USB 2.0, FireWire, SPDIF in/out, the god-like external CMOS reset button, a Gigabit Ethernet port and the obligatory stealth bay. On the inside, aside from the chip update and Socket change, there isn't much difference from the usual. It contains two RAID-able SATA 150 and two PATA ports, AGP 8x, a PCI slot and two Dual Channel DDR-400 DIMM slots. Even though space is wads scarce, installation was a breeze.

At the time of writing, the Aussie retail price wasn't confirmed, but we know it won't be for the light-walleted. As such it could be a little pricey for what is essentially a relatively bare mix by Shuttle standards, and could probably do with something extra, be that a six-in-one media reader or 802.11g.

Once powered up, there's not a sound to be heard. It uses the well engineered ICE-Heatsink cooling system we've come to expect from

Shuttle for the CPU, with a slight barrier surrounding where the processor sits on the copper core. This is slightly annoying for those of us who are anal about the ultimate thin spread of goop. And so quiet, the silent chipset cooler spun over twice as fast as the temperature controlled 92mm CPU cooler, which rarely revved above 900rpm. Dust mites are louder.

It's craving for a feisty new Socket 939 Athlon 64 to mate with, sporting the rock solid and sweet nForce3 250. Suited to pump out everything that's thrown at it, with the added bonuses of a reduced noise factor and sassy design, this kit is – though a little empty – fully deluxe.

 PND

SCORE 8.5/10

Gigabyte GV-RX60X128V

Supplier:
Synnex
www.synnex.com.au

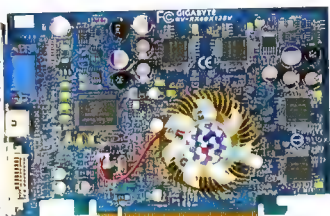
Website:
Gigabyte
www.gigabyte.com.tw

Phone:
Synnex
1300 880 038

Price:
\$439

Specifications:

ATI RADEON X600XT; x16 PCI-E connector; 128MB GDDR memory; D-Sub, DVI and TV-Out



As PCI Express slowly begins the long march towards becoming the new standard graphics interface, card manufacturers are bursting to deploy a range of PCI-E solutions across the performance spectrum. ATI's RADEON X600XT is its flagship mainstream GPU, designed to bridge the wide gulf between price and performance.

In the AGP space, the previous generation's high end cards like the RADEON 9800 PRO and XT have experienced a drop in price that has now put them into the mainstream space, and are definitely viable options for gamers

unable to afford the high end X800 cards. However, in the PCI-E space there are no legacy chips in ATI's line-up, so the X600XT is one of the only viable mainstream choices.

This is even more important now that NVIDIA has paper launched its GeForce 6600 series of mainstream Shader Model 3.0 cards, as now it only has the lacklustre GeForce FX based PCX cards in its line-up. We are still unsure about when we will see the 6600 cards on the market.

In performance terms, the X600XT card hovers around the same level of NVIDIA's PCX 5900 card. However, in terms of features, it is a much superior offering. Based upon the RADEON 9600XT, the X600XT sports four full precision Shader Model 2.0 pipelines, which makes for a much more rounded solution than the heavily flawed PCX architecture.

Gigabyte's GV-RX60X128V card is a robust solution, which combines the competent performance of the X600XT with a game bundle that includes Counter-Strike: Condition Zero and Rainbow 6: Raven Shield, which is pretty good for a card available at a mainstream price point.

However with the eight-pipeline GeForce 6600 imminent, it may well be one of those rare cases where holding off non-essential upgrades for a month or so might be a good idea. If you simply must have an ATI mainstream card now then this is the one for you, although bear in mind that overall it is only a good card, not an outstanding one.

 JG

SCORE 7.5/10

Antec NeoPower

Supplier:
Altech
www.altech.com.au

Website:
Antec
www.antecusa.com

Phone:
Altech
(02) 9735 5655

Price:
\$242

Specifications:

480W ATX PSU; 120mm fan; removable cabling for customisation; supports 20 and 24 pin ATX12V systems; SATA; PCI-E; Molex connectors.



Normally *Atomic* stays away from PSU reviews. Over past years differentiation between models has been on two fronts: efficiency, and the number, position and presentation of the fans within. But at heart a PSU is pretty unchanging, until now.

Antec's NeoPower PSU caught our eye because of one unique addition. It uses removable power cables rather than the hardwired kind, and we have been shaking our heads wondering why no-one has thought of it before.

Perhaps it is only now that connector requirements are beginning to diversify beyond the

standard four-pin Molex, floppy and ATX connections. For with the launch of PCI-Express there have been a couple of accompanying plug types needed to run adaptor-free.

First, and most important, is the 24-pin ATX plug, which comes hardwired to the NeoPower PSU (as well as the four-pin ATX 12V plug). If you have a standard 20-pin ATX connector on your motherboard an adaptor is supplied in the box. Second, SATA drives are becoming more common and these use specialised power plugs, which come on one cable attachment with the NeoPower. Similarly, high-end PCI-E graphics cards have new six-pin power connectors that usually require an adaptor and two four-pin molex plugs to connect. Antec has added to the package a cable with one of these plugs.

Besides these the PSU also ships with three cables, each

sporting three four-pin Molex plugs, and a fan-only cable. Plus two four-pin molex and two SATA connectors that can be spliced onto any of the cabling.

This is the most user-friendly PSU that we have seen in the *Atomic* labs. The combination of a range of connectors as well as the reduction in the number of erroneous cables snaking through a case makes for one tempting product. It is certainly not a cheap offering, but this is a high quality 480W power supply that should see you clear for several years of upgrading; safe in the knowledge that changes in PC power design will not impact.



JG

SCORE

9/10

Robosapien

Supplier:
Robosapien
www.robosapienonline.com

Website:
Robosapien
www.robosapienonline.com

Phone:
Dorcy Irwin Pacific
1800 228 889

Price:
\$189.95

Specifications:

Biomorphic robot; IR remote control; pre-programmed functions; full arm control, movement control; very limited programmability



Robots are one of those intrinsically cool things. We all secretly hope for a day when we have our own little robot to clean the house, struggle with the concept of emotions and rain fiery plasma death on our enemies. It is a yearning that grows as the pace of technology takes us relentlessly to this point in time.

So Robosapien is certainly of interest to our plans for world domination, giving us an idea of the size and design constraints of

our future secret lairs. It is a biomorphic robot, designed by some dude who works for NASA. It is certainly a toy rather than a tool of destruction, but it gives us an insight into the way things like joints and movement are developing in the field of robotics.

Intended to be operated via an IR remote control, the scope of what Robosapien can do is limited to some walking around and arm gestures, occasionally being able to pick up things in its gripping hands (no, this is not a pleasure model). You are able to program in a sequence of movements; however, this is restricted to a measly six actions per program, which limits things markedly.

So while you can make it perform a series of free moving though highly ineffective karate chops, you still can't send it to the kitchen to grab a beer. And while it

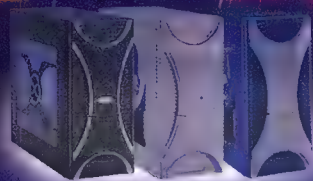
does have several dance functions, accompanied by cheesy music from its speaker, none of these dances look anything remotely like what Hollywood and TV has taught us that 'dancing like a robot' should look like.

It is a cool novelty, but that is about it. There is no real use for this robot outside impressing your friends or kids (it does look cool and move smoothly). It isn't even in the same league as the (exceptionally more expensive) Sony Aibo. We considered the potential for fighting two of them but then realised it would look like two sumo wrestlers trying the Greco-Roman variant. Funny, but ultimately depressing.

JG

SCORE

5/10



► 14CM POWER

Patent
3100550



ISO7779 dBA Testing
Top silence PC power supply (<21dBA)

► XION SF-465



- Airflow hole around the entire case for the best heat dissipation.
- Front access USB2.0 / Audio / IEEE1394(option)
- Build-in removable air filter in the front and sliding drive rail assembly.

► FAN MASTER



SF-609

- Fashion looking with outstanding quality.
- SUPER FLOWER be sured customer having of gamer's dreaming fan controller with high performance.

► X-MASK SF-462



- Various cooling fan supports in front, rear and side of chassis for highly efficient ventilation.
- Front access USB2.0 / Audio / IEEE1394
- Acrylic side window & colorful light LED Fan.

TWAN: (Manufacturer)

SUPER FLOWER COMPUTER INC.



www.super-flower.com.tw

★ **Australia: (Agent)**



OTC Comptuer Pty Ltd



Westan Pty Ltd

★ **New Zealand: (Agent)**

Times Technology(NZ) Limited

• VIC 03-9545 3966 • NSW 02-9748 2750 • QLD 07-3899 3811

• NSW 02-9648 2060 • QLD 07-3840 3522 • SA 08-8351 6600
• VIC 03-9541 8888 • WA 08-9445 9688

• Auckland 09-6201 0000

BenQ FP783

Supplier:
BenQ
www.benq.com.au

Website:
BenQ
www.benq.com.au

Phone:
BenQ
(02) 9714 6800

Price:
\$899

Specifications:

17in TFT; 1280 x 1024;
12ms response time;
0.264 dot pitch; 300cd/m2
brightness; 500:1 contrast
ratio; D-Sub and DVI; 2W
speakers; three powered
USB ports; optional
webcam.



With true 12ms TFT displays entering the market, blur is in the past. And with this sleek 17-inch screen, reflections are another thing in the history bin, as self-portraits are pretty much completely gone with an almost totally anti-reflective surface. It's also equipped with three powered USB ports, removable speakers and an optional webcam.

The plastic 2W speaker set that clips under the monitor is an interesting addition, with above average quality sound given the small size of the speakers. Nonetheless,

for spitting out anything other than Windows sounds, like tada.wav, we'd suggest grabbing something else for total aural satisfaction.

A nifty USB port placed directly at the top of the monitor provides a prominent placement for the BenQ webcam capable of 640 x 480 at 15fps (or 30fps at 320 x 240).

The screen itself is beautifully clear and sharp and with a great viewing angle of 140° there's no lack of audience provisions. However, reds seem highly sensitive to blurring if set high enough with the default 'reddish' setting. This was easily fixed by tweaking the custom colour range settings. For an LCD screen, black representation is superb. However, backlight consistency over the screen varies slightly with a thin region situated at the top.

We did find one problem with the phase control. In particular, you have to make a trade-off between

whites/yellows and blues/greens, because it was necessary for one or the other to be a tad noisier than the other.

Speaking of pixels, BenQ will only replace the display if there's a defect pixel in the centre ninth of the screen – or a minimum of eight defects elsewhere. Be sure to pick a good one.

Overall this baby has to be the brightest TFT monitor we've looked at. Sitting in at 300cd/m2, even when boosted to full, it retains its crisp colours thanks to the 500:1 contrast ratio. Our obligatory gaming tests produced very pleasing results, with impressively vibrant colours and no visible blurring.

ND

SCORE

9/10

Creative Zen Touch

Supplier:
Creative
au.creative.com

Website:
Creative
au.creative.com

Phone:
Creative
(02) 9021 9800

Price:
\$499

Specifications:

Touch-sensitive control;
WHD: 6.68 x 10.5 x
2.21cm; weight: 203g;
USB 2.0 connectivity;
rechargeable Lithium-ion
battery; 20GB hard drive;
160 x 104 backlit LCD;
supports MP3, WMA and
WAV audio formats; carry
pouch and earphones;
bundled with Creative
NOMAD FM wireless
remote (see this month's
Gearbox).



Microdrive-based portable MP3 players, with their larger capacities, and better cost-per-megabyte over their solid state counterparts, are currently the rage among young adults with semi-soluble incomes and the obligatory need to groove. The main appeal being that you can store not only your entire music collection on the one device, but also any extraneous files you might want to cart around.

Creative's Zen Touch adds to the company's growing range of microdrive players, slotting in with

its Jukebox and MuVo² series. In addition to providing the aforementioned mobile storage benefits, of which there is 20GB worth, the Touch comes with a dandy set of earphones and pouch, as well as the required USB cable and recharge gear. Like Apple's iPod, the Touch uses a Lithium-ion rechargeable battery that supposedly provides 24 hours of continuous usage – in reality, loud volumes and constant manipulation of the player brings this down to around 10-15 hours, but this is still very respectable.

The device's main feature is its touch-sensitive control pad, positioned in the centre of the fascia. The default sensitivity of the pad however is quite high, and even on its lowest setting it can be a pain to use, especially as the manual incorrectly describes how it works. The 'double-tap to select' option is also easy to

inadvertently trigger, and is best kept disabled.

Audio quality is amazing and the supplied earphones are more than capable. The player supports WMA and WAV audio formats along with MP3, and had no problems playing tunes at a variety of sampling and bit rates.

The Touch Zen isn't without its niggles. Towards the end of its charge, the device's interface will often seize, and the supplied NOMAD Explorer software suffers at the hands of the Zen's inflexible 'Album/Genre' storage structure.

Otherwise, the Touch Zen is a very capable player that offers superb audio quality at a price similar to Apple's iPod.

LB

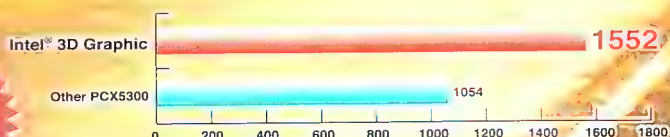
SCORE

8/10



Got A Need For Speed?

**47%
Performance
increase**



Test Platform:

PX915G Pro, Intel LGA 775 Prescott 3.2GHz, Kingston 256M DDR 500 memory X2

**FX5700U
"HOT"
Atomic**

Jan 2004 Australia



PX915 P / G Pro

Intel® 915P / G + ICH6 chipset

- Supports Intel® Pentium® 4 Processor (Prescott)
- Socket 775 with FSB 533 / 800 MHz
- Supports Dual Channel DDR400 Memory
- Supports 1 x PCI Express x 16, 2 x PCI Express x 1, 3 x PCI Slots
- Supports 8 Channel Audio
- Supports Marvell Gbits Ethernet LAN & VIA 10 / 100 Ethernet LAN
- Supports 4 Serial ATA150 Channels
- Supports IDE RAID 0,1 / ATA133
- Integrated 3D Graphics Engine (PX915G Pro only)
- Supports 8 x USB 2.0



FSB 800 Dual LAN Serial ATA PCI Express



6800U / 6800GT

- NVIDIA® GeForce™ 6800Ultra GPU (6800U, Clock 400MHz)
- Superscalar 16-pipe GPU Architecture
- 256 MB, 256-bit DDR 3 Memory
- AGP 8X with TV-Out / Dual DVI ports (6800U)
- CineFX™ 3.0 engine supports Microsoft® DirectX® 9.0 Shader Model 3.0
- Intellisample™ 3.0, UltraShadow™ II, HPDR, Digital Vibrance Control™ 3.0 multi-display technologies
- Bundled DVD Player software and PC games

DVD VIEW AGP8X CRYSTAL



LWX-30AMS-3

- Ultra-Wide Viewing Angle (170 Degree).
- Native WXGA 2.36 million pixels (1280 x 768) Panel Resolution.
- 500:1 Contrast Ratio and 500 nits Brightness.
- Fast 16ms Response Time and HDTV 1080i / 720p Ready.
- SRS (WOW) Surround Sound.
- 16:9 / 4:3 Switching Mode.

Cool Product!



WIDIO® www.widio.com

A Digital Wireless Audio System

- 2.4GHz Wireless Technology
- Turn your favorite headphone and active speakers into wireless system
- Super High Audio Quality (S/N ratio 90 dB)
- Transfer Rate at 2Mbps without audio compression
- Accept any audio format
- Transmit up to 100m line of sight
- Light ware receiver (110g including battery)

World Premiere!

ibutors:

AMI
COMPUTER SERVICES
7-3808-9255
@ami-computers.com

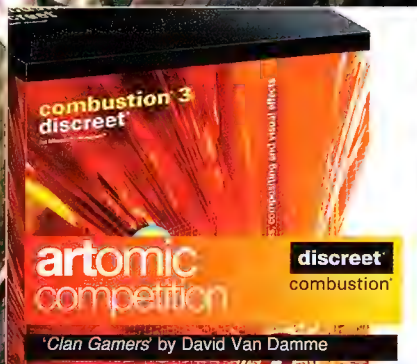
Sydney
TEL: 02-9763-2122
simonami@ihug.com.au
Melbourne
TEL: 03-9563-3389

AustraliIT
Victoria
TEL: 03-9543-5855
Info@australiit.com.au

GLOBAL
Sydney
TEL: 02-8718-8888
Sales@gbl.com.au

Dove Electronics Ltd
Christchurch, New Zealand
TEL: +64-3-338-4722
FAX: +64-3-338-5564
www.dove.co.nz

Albatron



This started as a homage to H. R. Giger, but the image moved in a different direction and ended up as a group of necromancers' helpers playing UT2004 while the boss was on his lunch break. I worked on it for around a week.
Programs used - Alias Maya 5 Complete and Adobe Photoshop 6

Create the winning Artomic and win the latest version of combustion, valued at \$1995, from discreet.
Email a preview (no larger than 5MB) of your games or hardware-themed masterpiece to:



artomic@atomicmpc.com.au

NECROMANCER ENTERED THE GAME
<CHANGE OUR NAME>
NECROMANCER CHANGED NAME TO MR.CROWS.DADDY

<LEFT IN THAT DOOR>
<GET THE SHOCK>
YOU GOT THE SHOCK RIFLE
<I THINK THERES AMMO IN THERE>
YOU PICKED UP A SHOCK CORE
<WE NEED ARMOUR>
YOU PICKED UP ARMOUR

KNOW WHERE IS HE
<LEFT, LEFT, RIGHT, DUMP THERE, LEFT UP UP
DOWN THERE YOU ARE
LEFT DOOR, UP THOSE STAIRS, RIGHT, RIGHT AH!
MR.CROW WAS FATALLY ENLIGHTENED
BY MR.CROWS.DADDY'S SHOCK BEAM
<LOL, SUCKIT>
MR.CROW WAS FATALLY ENLIGHTENED
BY MR.CROWS.DADDY'S SHOCK BEAM
<HAHAHA>
MR.CROW COULDN'T AVOID THE BLAST
FROM MR.CROWS.DADDY'S SHOCK COMBO
<MUHAHAHAHAHAHA>

<NOW WHERE IS THE BOSS>
<DOWN THAT PASSAGE, UP THE RIGHT STAIRS>
NOT THE OTHER RIGHT STAIRS
YOU WERE KILLED BY MR.CROW
MR.CROWS.DADDY'S CRANIUM WAS MADE
EXTRA CRISPY BY MR.CROW'S LIGHTNING GUN
<CRAP... CRAP>
MR.CROW TRIED TO JUGGLE MR.CROWS.DADDY'S GRENADE
<LOL, LAME>





Games



For the love of...

Doom 3 is released, and the internet drives John Gillyooly nuts.

OK, so I am supposed to be having a day off today, after one heck of a deadline. But here I sit at home, casually flicking through some games news sites and suddenly I come across this one bit – Gamespot – 146 new screenshots. Yes, it was Doom 3 launch day, but it highlighted some of the most bizarre behaviour I have ever seen in the history of fan-originated gaming news websites.

It's one of the best games in years, Gamespot. It looks hugely pretty indeed, and is actually scary rather than just a gaming representation thereof. But no one wants to play the game in some bizarre Photoshop slideshow format. It's the pinnacle of insanity, the reason why id kept the screenshot output to a trickle. It's not even as if it's a multiplayer title, where potential megabucks clans are most likely looking to piece together enough info to pre-plan fun destroying 'tactics' two years before the game hits the shelves.

Then there were the spiraling number of Doom 3 tweak guides that appeared. It's perhaps the most graphics card intuitive game ever made, the unfortunate byproduct of being a purist OpenGL title in a DirectX world. Just load the game, hit the 'autodetect settings' button, maybe try a higher resolution, restart and then enjoy. Tweaked. If tearing is a problem, just go into advanced and turn on vsync.

Benchmarks are important; Doom 3 and Half-Life 2 have been the target cards for a whole lot of people's upgrades for a while now. And despite the fact they often frustrate me, kudos to HardOCP for an informative guide as to how the game would perform on various target systems. Because of the impending upgrade spurt we ran our tests to show how the game would work on the next generation 3D lineup, basically because you might as well look to a PCI Express system if the upgrade is system wide.

Unbelievably, I refresh the page I'm looking at and discover Gamespot have *updated* impressions of the game. Is the reviewer sitting there, playing through a level and then eagerly bashing out something along the lines of: 'and then, like, there was this dark corridor and the lights were flashing and it was spooky, and then I heard a noise and like whooaah there was this fireball coming at me, and this imp, he was like in my face man, and I went like blam with a shotgun and he went down, but then this zombie dude started wailing on me from behind, so I like went to blam but I needed to reload and then I did and it was like "this is my boomstick" on that zombies ass. <click below for 738 screenshots of this encounter>.'

I couldn't bring myself to click on it; it felt like I would be stepping across a line of some metaphysical sort. I used to love chuckling at the way Hollywood and the US TV industry portrayed events like games releases, the media scrabbling at any aspect of the story, interviewing the guy who once used id software's bathroom, stuff like that. But now it's happening, and while comedic for a while, it is kinda weird.

Hopefully Half-Life 2 will not suffer the same molestation at the hands of the online gaming media, both it and Doom 3 are about storyline and experience, and getting it force fed before you play does detract. Thankfully though, Doom 3 shines above this, and we hope and pray Half-Life 2 will follow suit, but it's a shame that the same level of hype won't be given to the other games that are set to come as part of this PC gaming renaissance that everyone is tipping.

Oh look, I glance at my messenger contacts and the proprietor of a certain hardware site has proudly changed his nick to 'benchmarking Doom 3', so here comes phase two. If anyone wants me, you'll find me in the garage playing Gameboy Tetris.

AK TIME!>
CKED UP THE FLAK CANNON
VE BEEN SPOTTED!!>



ShortCircuits

◀ Doom 3 is already casting its shadow on the games industry, with numerous titles being shifted to early 2005 releases in an effort to avoid an increasingly crowded market. THQ was first to announce delays on STALKER, Destroy All Humans and The Punisher, deciding to keep them for a market where the Doom 3, Half-Life 2, Halo 2 and GTA: San Andreas saturation on all platforms has subsided. This is especially important for the eagerly awaited STALKER, which now receives some breathing space in the insanely crowded first person shooter market.

◀ Over the past months the flagging RPG genre has had several leases of life, thanks largely to the stable of ex-Interplay developers now setting up development studios. Brian Fargo has formed inXile and gone back to his roots with a console focused Bards Tale game, which uses the Dark Alliance engine. Feargus Urquhart is heading up Obsidian Entertainment, working on both Star Wars: Knights Of The Old Republic 2 and Neverwinter Nights 2, while the now established Troika games is polishing off the Half-Life 2 engined Vampire: Bloodlines (which rumours indicate may end up part of an NVIDIA bundling deal).



BUZZWORDIKAN

Middleware

A catch all term for a grouping of software tools designed to ease software development. Game middleware often encompasses graphics rendering, physics, AI, audio, networking and other software packages that enable faster game development across multiple platforms.



The battle for middleware

John Gillooly delves into the console software wars and decides hardware is so last generation.

While the next generation console battle has hardly progressed beyond a few 'mine is better than yours' shots across competitors' bows, both console manufacturers and game companies are starting to position themselves in the underlying software wars that could well determine next generation success.

Microsoft was first out of the blocks with XNA, a nefarious catchphrase for a software strategy to enable middleware for development across Xbox 2, PC and handheld gaming platforms. This move towards ease of development was very much an attack on Sony, who was placing potential roadblocks in front of developers with its load balancing hungry CELL processor architecture.

Sony has responded to this in a number of ways. It has used Siggraph to announce support for an open file format called COLLADA (www.collada.org), which should enable smooth development by creating a format that can be worked on by a suite of industry standard developer tools. It has also put support behind the burgeoning OpenGL ES mobile games format.

These initiatives are targeted at making games easier to develop and more portable between platforms, in turn reducing the costs of game development. The benefits to console makers are in turn huge: if their platform is easier and cheaper to develop for then there will be a hunger to create titles. More titles usually means more console sales in the long run (take note Nintendo), and in the Microsoft versus Sony mindshare battle this is what matters.

But it is not just these two corporate behemoths that are looking to middleware for the future. One of the most significant acquisitions in years was EA's recent purchase of developer Criterion from the European Arm of camera maker Canon. Criterion is working on one of those 'inevitably over hyped during development first person shooters', called Black and the third Burnout driving game at the moment, both anticipated titles, but the real jewel in the Criterion crown is a product called Renderware.

Renderware is perhaps the most successful set of middleware on the market; it features in AAA titles like Grand Theft Auto, Tony Hawk and Call of Duty, in fact about 25 percentage of the world's console games are made with Renderware.

Combine this package with the pre-existing tool set that a publisher like EA has amassed over the years and you have an incredibly tempting environment for cross platform development. After all, if there is a minimum of overhead required to shift a game to a new platform, then it makes sense to launch titles in as many formats as possible to maximise sales.

One big worry was that the acquisition would take Renderware off the table for developers like Rockstar North, but this has been shot down by both EA and Criterion. Renderware is core to Criterion's business and a potential cash cow for EA, so the product will continue to be tweaked to support emerging gaming platforms while still being available for license.

So while hardware exists only as promises, the work to get games up and running is already being done. Sony plans to release the first iteration of CELL later this year, in the form of a content creation workstation (can anyone say PlayStation 3 Development Kit?), Microsoft is slowly building up its tools as part of XNA, and EA is gleefully awaiting increased revenue and scope from Renderware. It's only going to get hotter.

Developer Quote of the Month

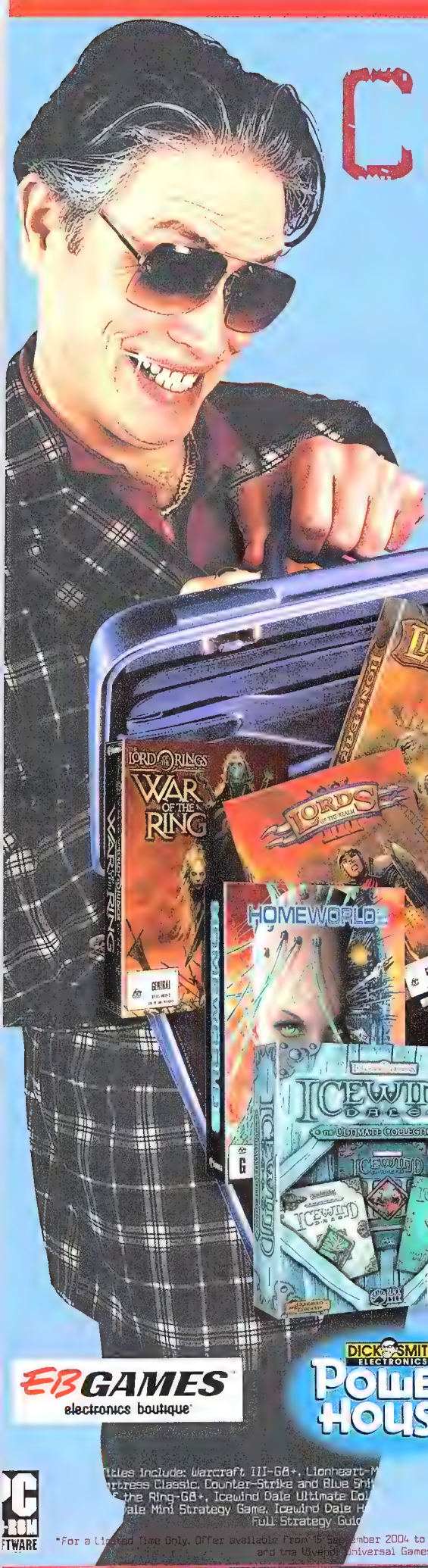
'Some of these guys would say "Hey I've got a hot girlfriend! I'm taking her to QuakeCon!", Bad idea, dude. You just brought her into the biggest buyers' market in the nation!'

Todd Hollenshead, id Software CEO during a recent interview with CNN

Calling all gamers!

ONLY
\$49.95*
RRP

TREAT
YOURSELF...
YOU
DESERVE
IT



EB GAMES
electronics boutique

**DICK SMITH
ELECTRONICS
POWER
HOUSE**

Harvey Norman
DOMAYNE

**THE GAMES
WIZARDS**

**VIVENDI
UNIVERSAL
games**

Titles include: Warcraft III-G8+, Lionheart: The Legend of Kings, The Sims, Lord of the Rings: War of the Ring-G8+, Icewind Dale: The Ultimate Collection, HomeWorld, Warcraft III: Reign of Chaos, Counter-Strike: Condition Zero, and Blue Shift. *For a Limited Time Only. Offer available from 15 September 2004 to 31 October 2004. All Information Subject to Change Without Notice. Vivendi Universal Games and the Vivendi Universal Games logo are trademarks of Vivendi Universal Games, Inc.



Sage's story

Logan Booker chats to Electronic Art's Mark Skaggs on Sage – the tech behind C&C Generals and the upcoming The Battle for Middle Earth.

Truly immersive gaming, the sort that makes your head spin and pants peak, is currently a rare thing in the games industry. But this absence of captivation has nothing to do with a lack of creativity. It's more a case of the developer's declining confidence in the player's ability to suspend their disbelief and experience new environments and characters.

Luckily, immersion in games doesn't have to come in the form of a VR headset or brain-jack – it can be something as simple as presentation or a well-developed story. id Software's recently released *Doom 3* is a perfect example of how straightforward gameplay, repackaged, can result in an entirely different gaming experience. While it might not be truly immersive, it creates the illusion of being so. Often enough, this is sufficient to amaze and satiate the seasoned gamer.

Electronic Arts' Los Angeles development studio, which goes by the catchy name of EA LA, is currently working hard on its *Lord of the Rings* realtime strategy, *The Battle for Middle Earth*. While *Doom 3* has captivated first person shooter fans with its unique take on in-your-face survival horror, *TBfME* looks set to share with RTS buffs the game industry's blossoming love of immersive games, in the form of a living, breathing computerised version of Tolkien's Middle Earth, fully populated with a mix of hobbits, elves and trolls – as well as vast armies, mythical beasts and fun-loving dwarfs.

Creative license

Like FPSs, many RTS games use engines, and *TBfME* is no exception. EA, being the publisher behind *Command and Conquer* *Generals*, has recruited *Generals*' Sage engine to provide *TBfME*'s foundation.

'We created Sage to be the platform for EA's RTS games going forward,' says Mark Skaggs, *Battle for Middle Earth*'s vice president and executive producer. 'We spent extra time to make sure that the engine was as data-driven as possible for maximum flexibility. We were able to get *C&C Generals: Zero Hour* [the expansion for *C&C Generals*] completed in less than six months. The nature of the engine also allowed us to get early prototypes for *Lord of the Rings: The Battle for Middle Earth* and other products up and running very quickly. Right now we call the platform we're working on 'Sage 2.0'.

Last year, Liquid Entertainment – the studio behind the oriental-themed *Battle Realms* – developed its own LoTR title, *War of the Ring*, for publisher Vivendi. While it used the book license, *TBfME* is based on the movie and as such, has had extensive

access to resources such as New Zealand-based WETA – the company that created most of the movies' visual effects.

According to a GameSpy interview with Skaggs back in September 2003, this is all thanks to New Line Cinema.

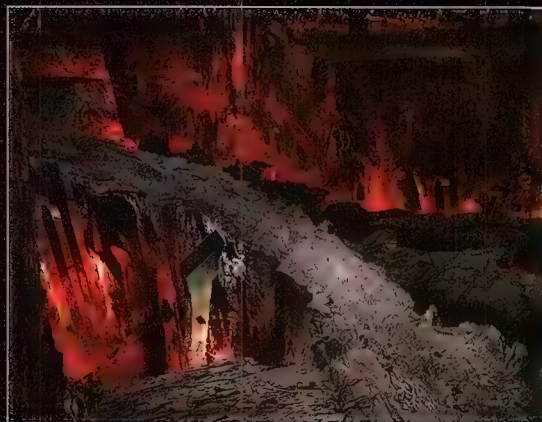
'New Line's been a great partner. When we went (to New Zealand) in June, they gave us access to everything. That tool and discussions with WETA gave us a really good sense of what's coming out in the third film, as well as showing us cuts that may never exist on film. It allowed us to know what the filmmakers were thinking and make some core progress even while they were still working on putting the finishing touches on *The Return of the King*,' said Skaggs.

The game does indeed embrace the flavour of Peter Jackson's interpretation, as the screenshots show. EA LA has also put a lot of work into the engine itself to make it more cinematic than *Generals*, including the ability to handle large armies consisting of many hundreds of units and special graphical effects to enhance the gritty realism of individual troops.

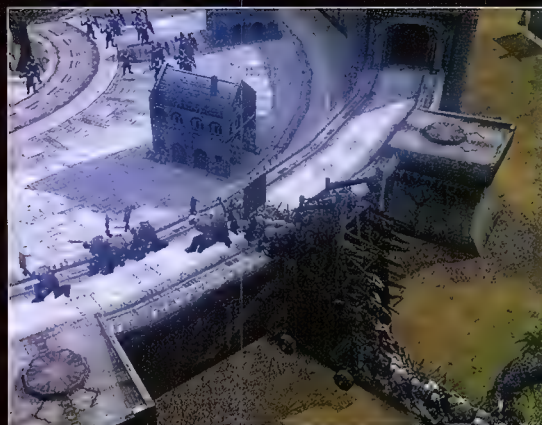
From tanks to trolls

Coming from *Generals*, the Sage engine was not quite ready to reproduce the world of Middle Earth. It was designed to accommodate units like choppers, planes and tanks, rather than ogres and wizards.

'This game is all about a beautiful organic world filled with huge numbers



ABOVE: Amazing concept art from EA LA.



ABOVE: Orcs use a siege engine to scale the walls.





ABOVE: Being able to draw on assets from the actual *LoTR* movies has given EA LA the opportunity to replicate the look and feel of the movies.



of organic emotional creatures. We like to say, "tanks don't have emotions; trolls do," says Skaggs.

'To accommodate the needs of the game and the fiction, we've had to spend time improving our animation and combat systems, as well as optimising the engine to handle such a large number of units on screen at the same time. Some of the changes were simple engineering changes and others dealt with the "look and feel" of these organic creatures as they moved and battled.

The Balrog is a great example and so are the Ents. These creatures are big and

need to act as if they are alive, showing the full range of emotions necessary to do justice to the world Peter Jackson showed us in his great films.'

By far the most prominent new feature is the 'emotion' system that will make Middle Earth feel alive. Each unit in the game reacts to onscreen events more subtly than simply attacking when enemies are in range, or just standing around waiting for orders once their opponents are dead. Foot soldiers will cheer, flee and taunt; orcs will back off in fear at the sight of a charging Ent and elephants will rampage when set alight by flaming arrows. This game dynamic goes a long way to make the game immersive and gives the impression that your units are more than just a set of variables or a collection of polygons.

'Our main goal for the game was to bring the battles that you see in the films to life,' says Skaggs.

Meta particles

'We have an amazing particle system. If you compare the effects we did in C&C Generals and what we're doing in Battle for Middle Earth, you can see the power of the system, especially in the hands of virtuoso artists,' says Skaggs.

Along with this robust particle engine, The Battle for Middle Earth also features a pseudo-physics engine. While Sage relies heavily on animations to do most things, the developers realised they would need some sort of physics engine to complement the



Marvel heroes

Ever since its release in 2002, Blizzard's Warcraft III has been the yardstick for realtime strategies, just as Starcraft was before it. Warcraft III has been so successful that a number of RTSs, including War of the Ring, the soon to be released Kohan II and even EA's own Battle for Middle Earth, borrow a popular element from the game – the 'Hero' system. Warcraft III was the first title to implement this game mechanic. Basically, the player recruits super, often side-specific units that grow in strength and ability as they combat their opposition. It's not unusual for heroes to become the crux of a player's army, once they are strong enough, and heroes in Warcraft III play such a vital role that it is almost impossible to win without them.

'[In The Battle for Middle Earth] we do support a light RPG type of mechanic in that our heroes gain experience over time and do earn new powers and spells,' says Skaggs. 'Heroes are critical for gameplay because we've balanced them "high", meaning that they are a force to be reckoned. And when they do, they will enjoy the experience.'



action. The implementation in Generals has seen considerable retooling to accommodate the more organic nature of TBfME units. Even complementary physics can add much to a scene where light infantry are scattered by a catapult hit or flung about by the swinging club of a marauding troll. Currently, the only other upcoming RTS to include such a mechanic is Relic's Wahammer 40K: Dawn of War.

'We have a system we call the "meta-impact system". This is the very lightweight physics system we use to make units react



ABOVE & LEFT: Sage is capable of rendering large numbers of detailed models.

to explosions, spells and other 'hit' effects in the game. When Sauron swings his mace and hits people, we add meta-impact to the hit so that infantry fly backwards. Same goes for Gandalf's blast spell. We came up with the meta-impact system after realising that we were spending too much time trying to create animations that showed the same effect,' says Skaggs.

Sage's flexibility extends to its data limits and handling, in addition to its graphic prowess. 'We were fortunate enough to have the time to build a great design tool, World Builder. Our designers use this tool to create the missions, script the skirmish AI and create multiplayer maps,' says Skaggs.

'It's the same tool we ship with the game. It's very powerful, but at the same time pretty straightforward to adopt and start making maps. We've got expert designers and artists using this tool to create some of the best work I've ever seen in an RTS and in any game, period.'

According to Skaggs, the engine is limited only by the hardware it's running on. It's a simple matter of increasing caches and constructs within the code to accommodate more content. EA LA also has plans to add benchmarking to The Battle of Middle Earth as hardware vendors have been asking for it.

The game's visuals make use of next-generation graphical features, including a technique called 'geometry instancing' that has yet to see widespread use. Geometry instancing, which is primarily supported by NVIDIA chipsets, will make handling the polygons for hundreds of tiny units less hectic for graphics hardware. EA LA will also begin using a system it calls 'LOD (Load On Demand) Everywhere'. This system will dynamically manage graphics detail during those times when the unit counts are high.

The game also supports vertex and pixel shaders and has fallbacks in case it finds itself on non-compliant hardware. 'We do have some pixel and vertex shaders in the graphics pipeline, but not as many as you might expect.

'We know that RTS players don't always have the latest and greatest hardware. So we're careful with what we use and always make sure there's a backup for people without the hardware to support shaders,' says Skaggs.

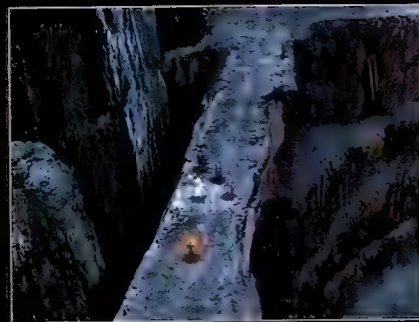
Data driving

The transition from post-modern military to high-magic medieval has required a number of tweaks to Sage's artificial intelligence (AI). With EA LA's emphasis on making the game exist in a world that feels alive, it was important the characters in that world act

correctly in response to stimuli, move fluidly and fit properly into the environment.

'When we talk about artificial intelligence in Battle for Middle Earth, what it actually boils down to is the huge range of actions, reactions and emotions of all the inhabitants in the game,' explains Skaggs.

He goes on to differentiate between emotive battles and sheer gunplay. 'In C&C Generals, you have a tank - it simply rolls up onto the battlefield and shoots a shell.



ABOVE & BELOW: If it was a battle in the movies, it'll be in The Battle for Middle Earth.

It's pretty straightforward, the AI is very direct. Roll up, shoot the shell. And there's your attack.

'But when we go into a world like Battle for Middle Earth the creatures are organic - they have emotions while they move to the right. It adds a whole new level of complexity. For example when the riders of Rohan move up on the horses, it's not enough to get them onto the battlefield and close enough to attack. The horses themselves have to react like you'd expect horses to react.'

The new Sage also had to accommodate the changing elevation of flying units, such as dragons and hawks, which Generals wasn't originally equipped for. To do this, EA LA has incorporated a new path-finding system that will handle changes in height, correcting unit animations in the process.

With the inclusion of all these new features, as well as the World Builder tool, The Battle for Middle Earth will continue its tradition of being highly mod-friendly. Although most of the game information is stored in archived data files, they are easily extracted with the right third-party tools.

'It's a complex system but modifications are straightforward. The INI data files are in simple programming language that we also use to program how units and other parts of the game work,' says Skaggs.

As for use outside the realm of realtime strategies, Skaggs says it's not impossible. 'The engine was built to work for "God" games and other games that are top-down. It could easily be adapted for simulations and RPGs.'



CALL OF DUTY™

LISTEN UP SOLDIER!

GET IN THE GAME WITH THE LATEST AUDIO WEAPONRY

Sound BLASTER
AUDIGY 2 ZS

The only way to capture the vivid intensity of battle in Call of Duty™ is from the action packed sound of the new Sound Blaster® Audigy® 2 ZS.

Hear the distinct clarity of artillery exploding all around you from dramatic EAX® ADVANCED HD™ environmental effects in 7.1 surround. Report now to www.australia.creative.com

Get in the battle – Get Creative.

SOUNDS BEST ON



Stand alone Sound Blaster Audigy 2 ZS sound card also available



CREATIVE
INSPIRE

We recommend **CREATIVE INSPIRE T7700** speakers for total surround gaming effects.

POWER
AWARD
December
2003

atomic
November
2003



ACTIVISION



Get **CREATIVE**

Shop 3-5, 524 Parramatta Rd, Petersham, Sydney, Ph: (02) 9021 9800

©2003 Creative Technology Ltd. The Creative logo is a registered trademark of Creative Technology Ltd. in the United States and/or other countries. ©2003 Activision, Inc. and its affiliates. Published and distributed by Activision Publishing, Inc. Activision is a registered trademark and Call of Duty is a trademark of Activision, Inc., and its affiliates. All rights reserved. Developed by Infinity Ward, Inc. This product contains software technology licensed from Id Software ("Id Technology"). Id Technology ©1999-2000 Id Software, Inc. All brands or product names listed are trademarks or registered trademarks and are property of their respective holders.

Wings of War

John Gillooly is a magnificent man in his flying machine.



Developer:

Silver Wish Games
www.gathering.com/
wingsofwar

Publisher:


Gathering
www.gathering.com


Distributor:

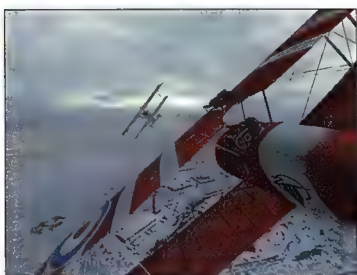
Take 2
www.take2games.com.au

Phone:

Take 2
(02) 9482 3455

 Loads of content, fun but not fantastic.

 Jerky controls and an unexciting flight model.



ABOVE: Ah, the days when all you needed was balsa wood and canvas.

A good arcade flying game needs a careful balance of realism and fun, constant care needs to be taken by developers not too push the game into the simulation arena, while retaining enough freedom of movement and action to stop it from becoming an Afterburner style blast 'em up (not that there was anything wrong with that in the eighties, but without the hydraulic arcade cabinet Afterburner was pretty boring).

By focusing on the relatively simple flight dynamics of World War I aircraft, Wings of War sets

itself up right, but it falters a little in delivery. The game has a wide suite of play styles, with both a 13 stage campaign and an instant action mode. The missions are a mix of dogfighting, ground attack and reconnaissance, with the occasional dash of fixed gun position manning to break up the monotony.

While things like take off and landing are done manually, the whole game is fairly forgiving on the player and this is certainly no sim. The flight mechanics are ok, but the controls feel a little too sensitive at times and dogfighting precision is incredibly tight, which is odd considering console control systems are usually at least a little forgiving. The control system really falls over when you control a gun turret as the sticks are way too sensitive for precise shooting.

Graphically the game is decent, but sometimes ground textures appear blocky and low resolution. Framerates are good, and slowdown is rarely experienced.

Wings of War is certainly fun to play, however it doesn't have that something special that the stellar arcade flying games like Crimson Skies and Yager poses. Those games managed to deliver a flight model that was both smoother and more fun, in which dogfights were tense set pieces. However Wings of War falls short of this.

If not for the deficiencies in the flight model this would be a fantastic game.

When you combine both the campaign and the instant action missions there is an abundance of content to soak up time, even if it is somewhat repetitive. It is the only WWI flying game we have seen on Xbox, but it falls behind Crimson Skies and Yager in the flying fun stakes.



7/10

Richard Burns Rally

Ben Mansill rally drives Richard Burns Rally. Really.



Developer:

Warthog
www.warthog.co.uk

Publisher:


SCI
www.sci.co.uk


Distributor:

Atari
www.atari.com.au

Phone:

Atari
(02) 8303 6800

 Realistic physics, completely faithful to real Rally rules and conditions.

 Not fun at all with a control pad, the impatient will find it boring.



ABOVE: All Rally games look realistic. This one actually plays that way too.

Rally games have always ranged between being purely arcade (Rallisport) to mostly arcade, but if you wish really really hard you could kid yourself into believing it's real (McRae). We've never had a true rally sim. Now we do.

Richard Burns Rally is astoundingly realistic. No ifs or buts. You know it is when you drive it. Picking up a new driving game usually means spending some time getting a feel for the way the programmers have decided to have their cars behave. Getting into Burns Rally is far simpler - you drive the cars just

as you would a real car, and you're right.

Well, sort of right. Most real cars don't thump out 300bhp. Driving is immensely difficult to do at high velocity, but this sim is designed for the kind of driver who derives great satisfaction from learning to drive well.

The secret to its realism is that developers Warthog modelled most key components of the cars as true 3D objects with properties matching the real item. Not everything is modelled, but what is, is impressive. Most engine components are, for example. Cop a rock through your intercooler and pretty soon the turbo will give up the boost. Suspension components can bend or break, handling affected accordingly. It all feels so right. Any driver who has yearned to thoroughly thrash his own car will love this sim. The realism comes at a cost; this is the most CPU-dependant game we've seen in a long while.

It's an unforgiving experience.

There's not much fun to be had here, but it's not designed to be fun. This is cold, harsh rally driving, with none of the bells and whistles of a Rallisport Challenge.

To make it anywhere in the Championship, you'll need to drive the often very long stages with the perfection of a traditional track driver. You'll need to take every corner perfectly, and fast.

Do it, and you'll be drained, but feeling a satisfaction which no other driving sim can deliver.



Requirements

1.6GHz processor; 256MB RAM; 64MB video card (card must support Pixel Shading).

Recommended

2.6GHz processor; 512MB RAM; 128MB video card equivalent to NVIDIA GeForce FX5600 or ATI RADEON 9800; good steering wheel & pedals.



9/10

Shellshock: Nam '67

Jungle bound John Gillooly corrupts his fragile little mind.



Developer:
Guerilla
www.guerilla-games.com

Publisher:
Eidos
www.eidos.com

Distributor:
Atari
www.atari.com.au

Phone:
Atari
1902 262 626

☺ A great looking and solid game with some fun shooting and blowing-things-up action.

☹ A little too full on at times, unforgiving control system.



ABOVE: Lock and load renegades, let's go shootin'!

War is hell, and Shellshock: Nam '67 is a big steaming dose of nightmare. It is an in-your-face story sitting on a solid third person action game with occasional puzzle elements. While it appears the souveniring of enemy ears has gone by the wayside at the behest of the OFLC, there is still a whole bucketload of brutal Nam action left to reinforce just how hellish war is.

This is the *Full Metal Jacket*/*Apocalypse Now* side of the tale; grunts are nicknamed 'short-

timers', the VC are pure crazed evil and the good guys nanoseconds away from atrocity. It does not really provide a moral counterpoint to the shadier side of war, instead at times it teeters on the brink of celebration.

You are a fresh recruit entering Nam early in the war, quickly thrown into the action. You soon discover evidence of a ruthless VC general, nicknamed King Kong, who is both a brilliant tactician and a sadist with a penchant for massacres.

Behind the scenario is a series of go here, blow this up, shoot those VC, disable this trap missions, standard war shooter fare. The game is played from the third person, which works adequately, although it has to be said that the control system requires a little too much precision at times to make it fun. There is a slight degree of autoaim, but it could be a tad more forgiving.

It does look great, with incredibly high quality cutscenes and a slick stylised look to it. The Vietnamese landscape is beautiful, and watching a napalm strike run along the ridgeline of a mist filled valley is very pretty. However some aspects of the visuals, like watching badly wounded VC try to crawl away, or a fort filled with decomposing bodies that you experience early in the game, are a little too full on at times.

While *Shellshock: Nam '67* certainly lives up to its name, this is not a game for the squeamish, and it has a well deserved MA15+ rating. It is a solid game, but while there is some great shooting to be had it lacks that something special that lifts a title to greatness.



7.5/10

Kohan II: Kings of War

Logan Booker over-extends himself as a violent monarch.



Developer:
TimeGate
www.timegatestudios.com

Publisher:
Globalstar
www.globalstarsoftware.com

Distributor:
Take2 Interactive
www.take2games.com.au

Phone:
Take2 Interactive
(02) 9482 3455

☺ Refreshing gameplay mechanics; streamlined interface and control scheme; lots of unit variety.

☹ Some sides feel a little unbalanced; economy model can be hard to understand. Little control over actual combat.



ABOVE: 'You wanna piece of me, King of War punk?'

Kohan II: Kings of War is a realtime strategy game that departs dramatically from its predecessor, *Kohan: Immortal Sovereigns*. While both games share a refreshing splash of elements more comfortable in the machinations of a turn-based game, *Kohan II* trims a significant amount of micromanagement from the proceedings, tunes the economy model, and packages it all in a nicely-presented 3D engine.

Kohan's strongest card by far is its deep history and plot. The single player campaign follows the

paths of a variety of characters from the games six sides – Humans, Drauga, Haroun, Shadow, Undead and Gauri – and slowly unravels the story of the immortal *Kohan* and the ongoing battle between light and shadow. Each race has its own set of units, ranging from engineers and footmen to giant bone golems and elemental djinn. In addition, each side has a number of 'factions' to choose from, giving bonuses to specific aspects such as attack damage.

Kohan II is by no means a fast game. Players used to the almost reflex-like nature of the early game concrete build order are in for a nasty surprise. TimeGate Studios has done a great job of discouraging rushes by implementing a town-based militia, which will soundly beat most starting armies.

Perhaps the most unfamiliar aspect of *Kohan II* is the resource model. While there are five resources in the game – gold, stone, wood, iron and mana, gold is

the only resource that stockpiles and is the most important. In fact, the resource model is so unfamiliar players will be trounced time and time again as they adjust to it. *Kohan II* relies on the player over-extending himself and taking risks in order to prevail, naturally making a 'sit and defend' tactic unfeasible.

Kohan II: Kings of War is definitely an innovative title in the current RTS environment. The steep learning curve may detract from the game somewhat, but it still ranks as one of the more enjoyable titles on the market.

Requirements
1.5GHz CPU; 128MB RAM; DirectX 8-class video card
Recommended
2GHz CPU; 256MB RAM



8/10

Their lives
are in your
hands.

Lead your men
to victory...

...then lead
them home.

"A true-to life soldier experience."

Official Australian Xbox Magazine

"...uncompromisingly realistic..."

- IGN.com

"The most realistic, tactical combat strategy game ever."

- Gamebiz.com.au

Full Spectrum Warrior



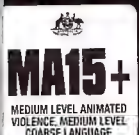
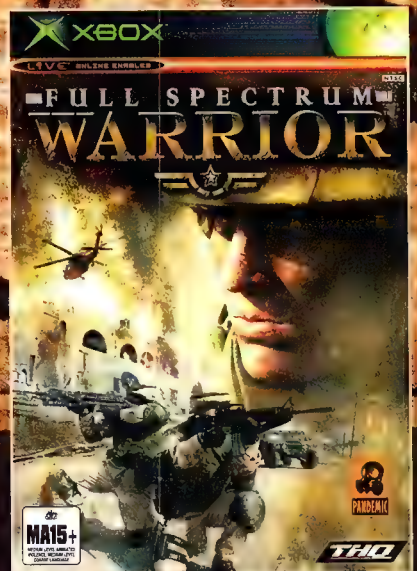
www.thq.com

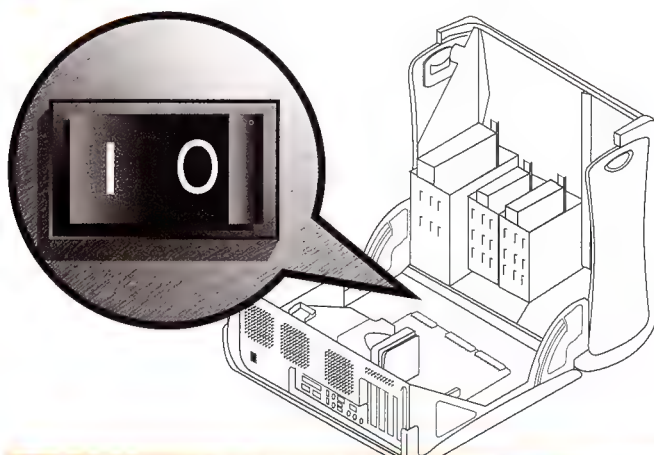
Based on a training aid
developed for the U.S. Army*

*This game is not sponsored or endorsed by the United States Army.

PC
CD
ROM

XBOX
LIVE





IO of the month wins a Logitech MX510!

Slick as a stick and twice as flexible!
io@atomicmpc.com.au



IO OF THE MONTH

Performance anxiety

I With Doom 3 released I'm forced to evaluate my PC's performance and determine what, if anything, needs upgrading.

I'm running an Athlon 64 system on an MSI K8T Neo motherboard, so that seems fine. My video card is a 128MB [RTF bookmark start:]OLE_LINK1RADEON [RTF bookmark end:]OLE_LINK19800 PRO, also seems fine. Unfortunately, my RAM is a 2 x 256MB kit of Kingston ValueRAM. CAS 3.0 slows everything.

So it seems I have two upgrade paths, since my budget want it to be as close to \$200 as possible.

Path 1 – grab a 512MB stick of Kingston ValueRAM, bringing my total RAM to 1024MB. Two problems; firstly, will this be compatible with my current setup and secondly, will the slow response time become a problem in the future for the next generation of games?

Path 2 – grab 512MB of sexy RAM. Obviously I'll have to remove my current RAM, so I'll be stuck on 512MB, but it will be *fast*. Two problems again: is this enough RAM? And which RAM to choose at the \$200 mark?

Joshua Anderson

Q People always ask this kind of question just before some hotly anticipated new game comes out, and I always give the same basic answer:

Get the game. Play the game. See if your PC actually does suck. If it does, upgrade. If it doesn't, save your money. Don't upgrade first.

Someone with a PC that doesn't make it even to the minimum requirements for

running Doom 3 (GeForce3/ RADEON 8500, any old P4 or Athlon XP, 384MB RAM, \$2.40 worth of spare hard disk space) has a case for upgrading before buying. You, however, should be fine on all counts; as you say, you're only a bit short of RAM.

The timing of your RAM can make a difference to game performance, but it's not likely to make enough of a one that you'll be able to perceive it. Video card, CPU, and *quantity* of RAM matter, and the *clock* speed of the RAM can have a significant impact, but the RAM timings are much less important.

The RAM that takes a real pounding when you're playing a game is the video memory on the graphics card. Even if

you've got a PCIe system with an x16 graphics card that gives you AGP 16X video bus speed, you'll *still* lose a ton of frame rate if the video card runs out of RAM.

Doom 3 certainly can be a monstrous video memory hog if you wind its texture quality up to maximum, but upgrading your system RAM won't help a great deal with that. You'd have to get a whole new video card, which wouldn't be a cheap proposition even if you took leave of your senses and only upgraded to a mere 256MB RADEON 9800, not a current generation ATI or NVIDIA card.

There's a further kink, here: if you're running DDR400 (PC-3200) DDR memory at the moment, your three-slot motherboard will choke you back to DDR333 (PC-2700) speed if you fill its memory slots with most combinations of three memory modules. Only three single-sided modules, or two singles and one double, are meant to work at DDR400 speed.

Thankfully, this is explained in the manual (page 2-11 of the one I just downloaded), but the manual won't tell you how many 'sides' your current modules have, and you can't tell just by looking. Your current modules are probably double-sided, though.

So, to repeat: Get the game, play the game, and make your upgrade decision then. Don't join the ranks of the few, the proud, the unnecessary early adopters, whose Half-Life 2 vouchers are all curled up and yellow.

Chip chilling

I After receiving my big paycheque the other day, I've decided to spend it on cooling my XP 2500+. While searching for HSF alternatives, I found these neat cooling plates called Peltier TECs that claim to make one side go sub zero and the other over boiling point, making my CPU very cold, but requiring some excessive cooling power on the opposite side.

The big question is, should I use an expensive HSF (Gigabyte 3D Cooler Pro or Thermalright SLK) to cool the TEC, or use a full water cooling system to keep the



People always ask this kind of question just before some hotly anticipated new game comes out, and I always give the same basic answer: Get the game. Play the game. See if your PC actually does suck. If it does, upgrade.

XP 2500 running in the safe zone?

Nick Vause

☐ Actually, few Peltiers can manage to be freezing on one side and boiling on the other. You can have one or the other, but not both, because the maximum temperature difference they can manage from one side to the other is well under a 100°. You can stack Peltiers to get bigger differentials, but that severely reduces their total thermal transfer capability; it's not a workable solution for reasonably hot loads like most PC CPUs.

The only way you're going to be able to get a Peltier on your processor to work



ABOVE: Peltiers make it easy to have fun with frost, but they're not a great cooling solution for modern chips.

reasonably well is with water cooling, because your Athlon XP can be counted on to pump out something like 60W when it's working hard. A really big and/or loud air cooler can deal with the 100W+ that'll result from Peltier-pumping that much heat, but it probably won't be able to keep the hot side of the Peltier cool enough to make the whole job worth doing. So water it'd have to be.

With a single really beefy Peltier – maximum power transfer well over 100W – you could make it happen; those Pelts are pretty easy to find these days. Unfortunately, I think they all want to run from 24V to give you full power, which rules out running one from your PC PSU. The alternative is two or more parallel 12V Peltiers sandwiched between copper cold plates, but that's hard to mount to a CPU, and the aggregate current draw is probably going to require another PSU, anyway.

And then there's waterproofing to deal with condensation, and doing something to stop your computer from burning its CPU socket off if the Peltier or the water cooling system fails.

Interior decorating

☐ When I was applying thermal paste to my CPU, I accidentally trod on the

thermal paste sachet and it squirted on my carpet. It's now been there for about a month because I've been too busy to clean it. It's not pushed into the carpet, and looks damn hard to get out – any ideas on how I would remove it? Are there any solvents that will help clean up thermal paste?

Tate Needham

☐ Oh, there are plenty, such as alcohol, naphtha (lighter fluid), and various others. Just squirting solvent on the stuff will only cause it to soak into the carpet, of course, and vacuuming up the liquid with a wet-and-dry vac is a very bad idea in the case of flammable solvents (the DIY Indoor Flamethrower!). Only if your vacuum cleaner is explicitly made for such tasks should you attempt this.

You don't want to try the non-flammable but still very evil solvents either (1,1,1 trichloroethane, Liquid Paper thinner, would do it – but probably also dissolve synthetic carpet, and require a whole lot of room ventilation to avoid poisoning you).

You could try cleaning the area with a sponge moistened with alcohol, then using carpet cleaning powder to get the rest. Simple salt or cornflour or something might work for this, but I'm not about to try the experiment myself to find out.

Is black better?

☐ Recently, as part of our electronics course, we learned about the properties of heat sinks. The course notes (and exam mark schemes) claim that to make a heat sink more efficient it should be painted matte black.

I understand that this would make it more efficient, but my friend and I wondered why CPU heat sinks are not painted matte black? Most other heat sinks (attached to amplifiers etc) seem to be painted in this fashion, so why not CPU heat sinks?

Peter

☐ Your course notes are right – and they're also wrong. A black object will, all things being equal, radiate heat better than any other colour.

However, painting a shiny heat sink black may do nothing, or less than nothing, for its thermal performance, because the layer of paint acts as an insulator. The black colour must be an integral quality of the heat sink material, or a very thin, thermally conductive layer on the outside; black-anodised aluminium is a perfect



ABOVE: Shiny silver sells sinks

example of a *good* black heat sink material. There is no (economical) way to put a black coating that thin on copper.

Also, the colour of the heat sink matters less and less the more air you move over the heat sink.

If the sink's hanging in vacuum then it *must* be matte black; if it's sitting on earth being cooled by convection then it *should* be matte black; if it's got a bunch of forced air cooling from an attached fan then it doesn't matter what colour it is.

Again, all things being equal, a shiny aluminium heat sink with a fan on it won't work quite as well as a black one – but the difference will be small enough that the extra marketability of the shiny heat sink is likely to be the deciding factor.

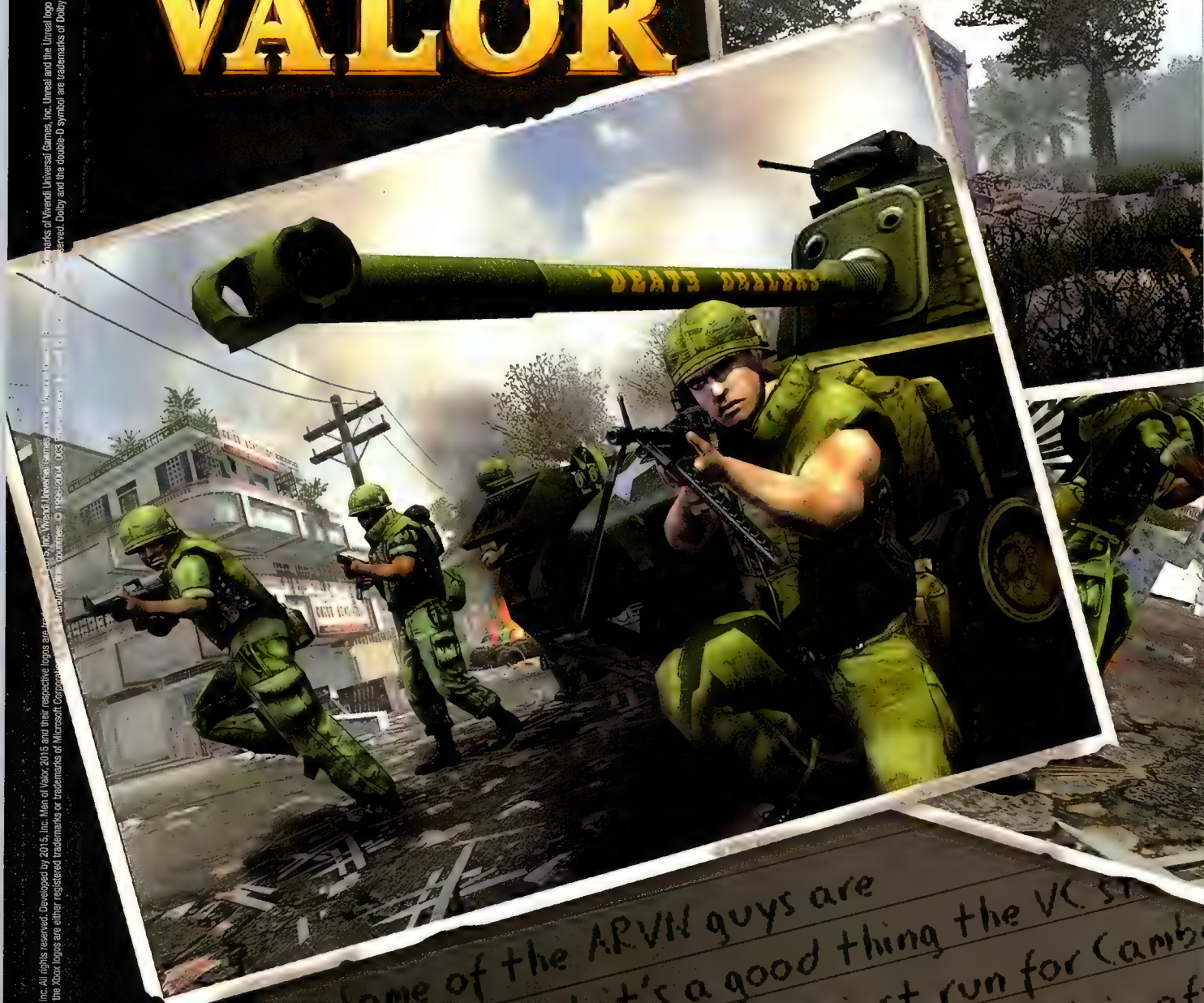
A shiny fan-cooled *copper* heat sink, which can't easily be made black without pointless insulation paint, will work better than an aluminium one with the same dimensions, thanks to copper's higher thermal conductivity.

 DR



They Fought For Freedom...
For Each Other.

MEN OF VALOR™



THE ONE TO WAIT FOR



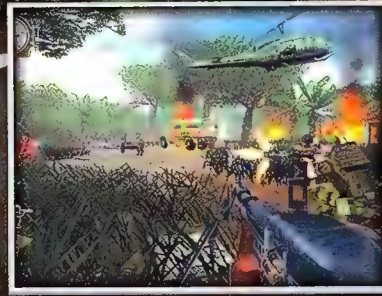
2015™



© 2004, 2015, Inc. All rights reserved. Developed by 2015, Inc. Men of Valor and their respective logos are trademarks or registered trademarks of Vivendi Universal Games, Inc. Microsoft, Xbox, Xbox Live, the Xbox logo, and the Xbox Live logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. © 1999-2004, 2015, Inc. All rights reserved. Developed by 2015, Inc. Men of Valor and their respective logos are trademarks or registered trademarks of Vivendi Universal Games, Inc. Microsoft, Xbox, Xbox Live, the Xbox logo, and the Xbox Live logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

"ONE HELL OF A WAR GAME!"

AUSTRALIAN GAMEPRO
OCTOBER 2004



Experience the Real Vietnam War from Jungle-Based Ambushes to Intense Urban Firefights

Pick Your Tour of Duty—Single-Player Campaign or Multiplayer via Xbox Live and System Link

13 Action-Packed Combat Missions Spanning Four Authentic Operations



Simon Peppercorn puts the pressure on IIS to perform.

If you are building or managing an IIS web server then here are some things you can do to fine-tune its performance. The tweaks mentioned here refer to IIS 6.0, as found in Windows Server 2003. The principles however, are largely the same for version 5.0/Windows Server 2000.

Before fine-tuning IIS, take some time to assess its current performance. You can do this using the Windows Performance Monitor. This will help log the performance, chart the results and identify some potential bottlenecks. Performance Monitor can be enormously informative, so spend a while discovering its intricacies, understanding its various counters, and learn to customise the appearance of charts to best suit your needs.

Don't forget about your memory

Memory usage is always important when looking to improve performance. Windows Server 2003 is fairly good at self managing its own memory usage, including memory allocation to IIS and its memory cache. Nevertheless, this doesn't mean we can't lend a helping hand, or at the very least see for ourselves how well and efficiently it is doing its job.

In Administrative Tools, launch the Performance Monitor. Start by adding some counters by clicking 'Add'. Simply choose a name, add the counter(s) and then select the action. Be aware that version 6.0 counters are not specific to each website the IIS may be serving, but refer to IIS performance overall.

To monitor memory usage with IIS 6.0, you should look specifically at these following counters:

- File Cache Hits – successful file cache lookups
- File Cache Hits % – ratio of hits to requests
- File Cache Misses – unsuccessful cache lookups
- File Cache Flushes – number of flushes since the service was last started
- Current File Cache Memory Usage – number of bytes currently being used by the cache
- Maximum File Cache Memory Usage – maximum number of bytes allocated to the cache

The number of successful versus unsuccessful cache hits will give you an idea of the amount of memory paging taking place – the less paging the better of course. You can then make a decision whether to increase cache size, which will often improve its performance. This comes at the cost of eating valuable system resources that may be required for other processes. The best option would be to simply cough up some more RAM and allocate part of it to the cache by massaging the registry as described below. Don't be greedy, as you can dedicate too much RAM, and create problems with memory fragmentation.

If you don't serve it then don't put it on the menu

If you will be using the system purely for serving web content, and have other servers providing other essential network functions, then you could trim some fat and do away with non-essential services. For example, if the server does not provide IP addressing services then you could safely disable DHCP. The types of services that are generally not needed on a standalone web server include: WINS, DHCP, Messenger, Telephony, Telnet, Fax Service, Internet Connection Sharing, NetMeeting, and Computer Browser.

To disable these services, run 'services.msc' from the Run box and go to the Properties for the relevant service. Stop the service if it's running and change the 'Startup type' to 'Disabled'.

Choking the pipes

If, however, you are using the system to provide multiple services, such as email or News, then you may choose to throttle the bandwidth to individual services, or even individual website.

In System Monitor (SysMon), add the counters which refer to 'Async I/O' in the counter name. These counters are only of use when you have already enabled bandwidth throttling. Otherwise their value

will always be '0'. You can study both incoming and outgoing traffic here. The total bandwidth being used should not exceed 50 percent of the total available bandwidth. This gives you a buffer, should you experience spikes in traffic, or heavy peak periods.

If you decide that you need to throttle the bandwidth being consumed by IIS then launch the Internet Services Manager under Administrative Tools. Expand the server name and open the properties of the site you want to manage. Under the Performance tab, select the check box to limit the network bandwidth and enter a value in the Maximum Bandwidth box, in kilobytes. Note, even though bandwidth can be throttled to specific sites or services, the counters which monitor this only monitor the global performance and not individual objects.

Registry tweaks

If you choose to venture forth into the registry to do some tinkering with IIS performance, drill down to HKEY_LOCAL_MACHINE/SYSTEM/CurrentControlSet/Services/Inetinfo/Parameters. The values of interest are:

- MemoryCacheSize – Default is 307200 bytes (3MB). The cache stores directory listings, system handles and Binary Large Objects (Blobs). If your server is getting a lot of traffic, then increasing this amount should improve performance. Slow traffic sites may not see any difference.
 - CacheSecurityDescriptor – By setting to 1 you will enable security descriptors. This will allow IIS to look to the cache for information about user access, rather than having to determine them each time the information is required. Please note that this will have no impact for non-authenticated users.
 - CheckCertificateRevocation – If your server issues certificates (if you don't know, then it probably doesn't or you shouldn't be messing with this part of the registry) then enabling this value to 1 will force IIS to check the revocation status of client certificates.
 - Listenbacklog – Defines the number of active connections in the IIS queue. Depending on your server, you can set this to a maximum of 250.
- If you are looking for more information on maximising IIS performance a white paper on IIS 6.0 tuning can be found here: www.microsoft.com/technet/prodtechnol/windowsserver2003/technologies/webapp/iis/iis6perf.mspx. The site is packed with helpful tips on how to get the most out of IIS.

Want to be an IT Professional? Get the Knowledge, Get Certified

Cisco CCNA & CCDA was \$2999
Atomic Special \$2499

Microsoft MCSE was \$3399
Atomic Special \$2999

CompTIA A+ & Network +
Special Atomic Bundle \$1599

**NEW Linux+
Course \$799**

Ask about our payment plans, **FREE** trial courses **REGISTER NOW!**

Also available Java, Citrix, Sun, Microsoft Office and Lotus



Microsoft



Learning
Solutions
Partner



itiQ+
itiqplus.com.au
1300 88 ITIQ

I.T.
**qualification in
26 weeks**

Upskill your IT knowledge in just 26 weeks* with QUT's new part-time IT graduate certificates.

Choose from 8 specialisation areas including:

- Wireless Games Technology
- Computer Networks
- Information Security
- Enterprise Wide Software
- Electronic Commerce
- Management of IT
- Multimedia
- Component Software and Web Services

Available to IT graduates. However, non-IT graduates with significant IT work experience may also be considered.

Use your graduate certificates in IT to gain credit towards a Master or Graduate Diploma of IT (for IT graduates – IT40).

We also offer a Master/Graduate Diploma of IT (for non-IT graduates – IT45) designed for graduates from any discipline to gain IT qualifications.

Enrol now and start in January 2005. Applications must be made direct to QUT by early January 2005.

Financial assistance

Government loans are available for study assistance.

Equity scholarships are available to female applicants for the Masters/Graduate Diploma programs.

More information

Find out more at our Postgraduate Evening, 27 October 3pm-7pm, Gardens Point (city) campus. Phone 07 3864 2782, email fit.enquiry@qut.edu.au or visit www.fit.qut.com

*based on 2 subjects per semester

a university for the **real world**®

Queensland University of Technology GPO Box 2434 Brisbane Q 4001 qut.com





Peter Sbarski manipulates the magic of ImageMagick.

In our crazy multimedia world I bet that each Atomician owns 10,000 family photos and looks at 5000 of them regularly (note: entirely fictional statistics warning!). Converting images from one format to another, creating thumbnails and adding annotations can be a real hassle even with 50 files, let alone a thousand or more. Enter ImageMagick utilities, which can do this without breaking a sweat. The utilities have a number of functions found in professional graphics applications and the simplicity and the effectiveness of a command line application. The ImageMagick suite is actually really powerful.

To check whether you have ImageMagick installed type `convert` at the command line. The `convert` utility is only one of nine utilities available from the ImageMagick suite. Others include `display`, `import`, `montage`, `mogrify`, `identify`, `composite` and `conjure`. ImageMagick usually comes equipped with Mandrake and Red Hat distributions. If it isn't included with your distribution or if you simply wish to get the latest version, surf over to www.imagemagick.org. For the benefit of simplicity let's assume that you are using the latest version of ImageMagick.

Format conversion

There is nothing simpler than converting from one image format to another with `convert`. To find out which image formats ImageMagick supports on your system type: `identify -list format` (on older versions of ImageMagick use: `convert -list`).



ABOVE: An image created in three easy steps with `convert` and `composite`.

To convert from one format to another you need to specify the source file and the output file. So, if you wish to convert a PNG file to JPG type: `convert image1.png image1.jpg`. Like all sensible programs the `convert` utility scans the file header to identify what type of file it is reading. You too can always identify the format of any image that ImageMagick can understand by using: `identify file`.

Unfortunately it sometimes happens, and we have all seen this on occasions, that files get corrupt. If the header gets corrupt but the rest of the file stays ok `convert` and `identify` may mistakenly assume a different format or refuse to work. In this case you can tell the programs what format it is reading to make its job easier. For example, assuming you have a JPG file with a corrupt header to convert to PNG type: `convert JPG:image.jpg image.png`.



ABOVE: Special effects with ImageMagick

Creating thumbnails

There are a number of ways to go about creating thumbnails. One way is to use the 'sample' option like so: `convert -sample 60x40 image-from.jpg thumbail.jpg`. The `sample` switch will preserve the aspect ratio of the image so the thumbnail will not necessarily be exactly 60x40. Rather `convert` will take 40 as the thumbnail height and set the width automatically (within the 60 pixel limit) to preserve aspect ratio. You can also use percentages to specify the thumbnail size like so: `convert -sample 10%x10% image-from.jpg thumbnail.jpg`. The `sample` option is fast and efficient but it preserves the image profile information which could be 50 or more kilobytes in size. The profile information is usually added to images by digital cameras and the like. Thumbnails don't usually need this information so it is better to delete it. The 'thumbnail' switch does just that. The command: `convert -thumbnail 60x40 image-from.jpg thumbnail.jpg` will work just like the `convert -sample` command and also strip away profile information.

To loop over a number of files and create a thumbnail from each of them you could use a simple FOR loop: `for image in *.png; do convert -thumbnail`

`60x40 $image thumb-$image; done`. Alternatively you could use the `mogrify` command like so: `mogrify +profile '*' -format gif -thumbnail 60x40 *.jpg`. You can see from this example that the command will process all JPG files, scale them and save them as GIF files. If you don't supply the '-format gif' option then all your JPG files will be overwritten.

Adding text to images and watermarking

To add some text to an image use the 'draw' parameter like so: `convert -font courier -fill white -pointsize 20 -draw 'text 0, 15 "My Image"' image-from.jpg image-to.jpg`. The previous command sets the font as courier, text colour as white, text size as 20 and produces a new file 'image-to.jpg' with the text 'My Image' located in the upper left hand of the old image.

Adding an image on top of another image (say, for watermarking) can be done with the `composite` command. Try the following: `composite -geometry +0+0 watermark.jpg image-from.jpg image-to.jpg`. This will produce a new file 'image-to.jpg' which will have 'watermark.jpg' pasted in top left corner of 'image-from.jpg'.


Special effects and miscellaneous

You can do some real funky stuff with your images such as blurring, sharpening, simulating a charcoal drawing, imploding image pixels, transforming the image to black and white, creating a mosaic from an image, negating pixel colours, adding or reducing noise, normalising, swirling pixels about centre, displacing pixels by a random amount, making a colour transparent, and much more. For example, to create a charcoal drawing from an image try the following: `convert -charcoal 20 image-from.jpg image-to.jpg`. Play around with the value '20' to get different results. To create a black and white image use: `convert -monochrome image-from.jpg image-to.jpg`. For information on how to use all of the features mentioned above and many others have a look at the man pages (man `convert`) or surf to www.imagemagick.org. Finally try this out: `convert -size 200x100 plasma:fractal -gaussian 0x4 output.jpg`.

Now how cool is that?



linuxtweaks@atomicmpc.com.au



what is possible?

find out at emagen.com.au

technology to enhance your entertainment experience.

*FREE copy of FarCry on DVD with all AMD Athlon 64 and Athlon FX desktops sold**

Vitesse DV

Want to get serious with your videos?
The Vitesse DV is optimised for video
and photo editing.

AMD Athlon 64 3200+
VIA K8T800 Chipset
512MB PC3200 DDR SDRAM
NVIDIA GeForce FX 5200
17" CMV TFT, 1280x1024, 14ms Response
36GB 1000rpm Primary HDD 8MB Cache
200GB 7200rpm Storage HDD 8MB Cache
52x32x52 CDRW, 16X DVD-ROM
Integrated Gigabit Ethernet
Integrated 5.1 Channel Audio
104Key Professional KB, Optical Wheelmouse
Windows XP Home Edition
1 Year Onsite Warranty

\$2,399 Inc GST

Vitesse 64

64-bit technology and performance
to burn in an affordable package.

AMD Athlon 64 3500+
VIA K8T800 Pro Chipset
1GB PC3200 DDR SDRAM
NVIDIA GeForce 6800 128MB
17" CMV TFT, 1280x1024, 14ms Response
120GB 7200rpm HDD 8MB Cache
16X DVD+/-RW Dual Layer Burner
Integrated Gigabit and Wireless Ethernet
Integrated 7.1 Channel Audio
104Key Professional KB, Optical Wheelmouse
Windows XP Home Edition
1 Year Onsite Warranty

\$2,999 Inc GST

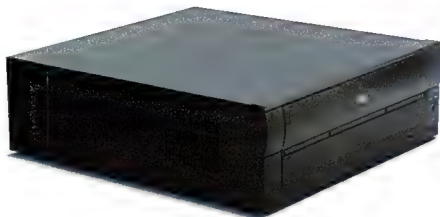
Lightspeed FX

Our highest performing system.
Loaded with the best technology
for an ultimate gaming experience.

AMD Athlon FX-53 Processor
VIA K8T800 Pro Chipset
1GB Corsair 3200XL DDR SDRAM
NVIDIA GeForce 6800 Ultra Dual DVI
19" CMV TFT, 1280x1024 Digital
200GB 7200rpm HDD 8MB Cache
16X DVD+/-RW Dual Layer Burner
Integrated Gigabit and Wireless Ethernet
Integrated 7.1 Channel Audio
104Key Professional KB, Optical Wheelmouse
Windows XP Professional
1 Year Onsite Warranty

\$5,099 Inc GST

DIGITAL HOME SYSTEMS



Transform your lounge room
into the ultimate digital arena.
Featuring an integrated high
definition digital TV tuner,
digital VCR, music jukebox, and
digital photo album, you've got
the most advanced and versa-
tile home entertainment solu-
tion available.

Digital Home M100

AMD Athlon XP 2500+
512MB PC3200 DDR SDRAM
120GB 7200rpm HDD
High Definition Digital TV Tuner
6 Channel Digital Audio
Remote Control
Windows XP Home Edition

\$1,199 Inc GST

Find out more about our complete range
at www.emagen.com.au or call us on
1300 880 070.

emagen
make your world go faster >

All prices are inclusive of GST but do not include freight. AMD, Athlon 64 and Athlon FX are the registered trademarks of Advanced Micro Devices. Visit www.emagen.com.au for our sales terms and conditions. Microsoft and the Windows logo are trademarks of Microsoft Corporation. Prices are subject to change without notice. Errors and omissions exception. *Offer available until stocks last.



The browser, reloaded

Simon Peppercorn takes Firefox to the next level to make it speedier, sexier, and USB portable to boot.

With the rather poor track record of IE's security, Firefox is becoming the browser of choice for many users – especially Atomicans. One of its features is a versatile and configurable design both visually and functionally, something that just happens to go hand in hand with the nature of *Atomic* readers. This guide will take you through some of the more important hidden settings, showing you how to build your own self launching, tweaked and customised Firefox, complete with a profile picker. We will even have you running this from a USB key, to open on any capable system, where Firefox is not already installed. We'd love to take all the credit but much of this guide relied on the hard work of others from the Mozilla forums. If you're not already reading them, check them out at

forums.mozillazine.org.

01 Finding Firefox

There are a few versions of Firefox which can be downloaded from the Mozilla website, in both Windows and Linux flavours. For the purpose of this tutorial grab the latest version of your choice, if you're not already running it, from www.mozilla.org/download.html.

02 Configuring Firefox

Many configuration preferences can be edited directly by typing about:config in the Firefox address bar. Whilst this is a handy way to do things, it isn't ideal. There is no description given as to what the settings actually do, and there is no simple way of restoring defaults if you can't remember what changes you have made. In addition, it doesn't allow you to change many other settings which can help improve the inner mechanics of Firefox.

The alternative is to create a customised script, which writes your personalised settings into Firefox each time it loads. This is preferable and offers a safety net, as you can return to a working state should you mess things up, simply by deleting the script. You can add your own descriptors to each setting to remind you what changes you are making. Within a multiuser environment, the customisations can be specific to each user profile (see Profiling Profiles boxout)

Use *Notepad* or another text editor to create a file called 'user.js', which doesn't normally exist, in the default or user directory for your profile. Don't confuse 'user.js' with 'prefs.js'. 'prefs.js' recreated each time Firefox is launched and the settings stored in 'user.js' are merged into it. It only remembers the settings you use for the current session. 'user.js' will override any conflicting settings in 'prefs.js'.

Below is a sample of some of the settings you can enter into 'user.js'. Take and tweak as many as you wish for your own user.js file:

```
// prevent popups appearing in new windows
user_pref("browser.block.target_new_window", true);

// Force resizable frames
user_pref("layout.frames.force_resizability", true);

// disable scrolling
user_pref("general.smoothScroll", false);
user_pref("general.autoScroll", false);

// Don't reuse active windows:
user_pref("advanced.system.supportDDEExec", false);

// Disable Automatic Image Resizing:
user_pref("browser.enable_automatic_image_resizing", false);

// No blinking tags
user_pref("browser.blink_allowed", false);

// No popup message for timeouts
user_pref("browser.xul.error_pages.enabled", true);

// Don't auto-hide the tab bar
user_pref("browser.tabs.autoHide", false);

// Privacy options
user_pref("browser.formfill.enable", false);
user_pref("browser.history_expire_days", 0);
```

```
// turn off animations
user_pref("image.animation_mode", "none");

// Session cookies only
user_pref("network.cookie.enableForCurrentSessionOnly", true);

// Referrer 0=don't send any, 1=send only on clicks,
// 2=send on image requests as well
user_pref("network.http.sendRefererHeader", 1);

// Disable security warnings
user_pref("security.warn_entering_secure", false);
user_pref("security.warn_leaving_secure", false);
user_pref("security.warn_submit_insecure", false);

// Improve pipelining
user_pref("network.http.pipelining", true);
user_pref("network.http.proxy.pipelining", true);
user_pref("network.http.pipelining.maxrequests", 100);
user_pref("nglayout.initialpaint.delay", 1);

// Improve multithreading
network.http.max-connections -> 60
network.http.max-connections-per-server -> 32
network.http.max-persistent-connections-per-proxy -> 16
network.http.max-persistent-connections-per-server -> 8

// Disable caching - useful when running from
// removable drives, such as USB keys
user_pref("browser.cache.disk.enable", false);
```



ABOVE: Join us! Become one of the many Atomicans who are Firefox users – feel the browser force.



03 Chroming for beginners

The 'user-chrome.css' file will allow you to change the visual appearance of Firefox, including the buttons and toolbar background images. The file, which doesn't exist by default, should sit in the 'chrome' folder under your profile directory. You can use the existing 'userChrome-examples.css' file and just rename it to 'userChrome.css'. For Windows XP users who want to blend Firefox to better match the default XP style try the following:

```
// XP style menus
menupopup, popup
{
border: 1px solid ThreeDShadow !important;
-moz-border-left-colors: ThreeDShadow !important;
-moz-border-top-colors: ThreeDShadow !important;
-moz-border-right-colors: ThreeDShadow !important;
-moz-border-bottom-colors: ThreeDShadow !important;
padding: 1px !important;
background-color: Menu !important;
}

menubar > menu {
border: 1px solid transparent !important;
padding: 2px 5px 2px 7px !important;
margin: 0 !important;
}

menubar > menu[moz-menuactive="true"] {
background-color: Highlight !important;
color: HighlightText !important;
}

// Use a custom background image for the toolbars.
// (Substitute your image file for background.gif)
menubar, toolbox, toolbar, .tabbrowser-tabs {
background-image: url("background.gif") !important;
background-color: none !important;
}
```

If you are using your own background, you may prefer to remove the background padding on the toolbar.

```
// Remove extra padding from the Navigation Bar
.toolbarbutton-1, .toolbarbutton-menubutton-button {
padding: 2px 3px !important;
}

.toolbarbutton-1[checked="true"], .toolbarbutton-1[open="true"],
.toolbarbutton-menubutton-button[checked="true"],
.toolbarbutton-menubutton-button[open="true"] {
padding: 4px 1px 1px 4px !important;
}
```

Sick of the sidebar being on the left?

```
// place sidebar on the right
window > hbox {
direction: rtl;
}
window > hbox > * {
direction: ltr;
}
```

The search bar on the right is rather small, by default. We can stretch it out by adding the following to the userChrome.css

```
// A wider search bar defined in No. of pixels
#search-container {
-moz-box-flex: 350 !important;
}
```

To change the throbber, add the following lines to the user-chrome.css file. Substitute for your own images.

```
#navigator-throbber
{ list-style-image : url("background_throbber.gif") !important; }
#navigator-throbber[busy="true"]
{ list-style-image : url("animated_throb.gif") !important; }
```

Profiling profiles

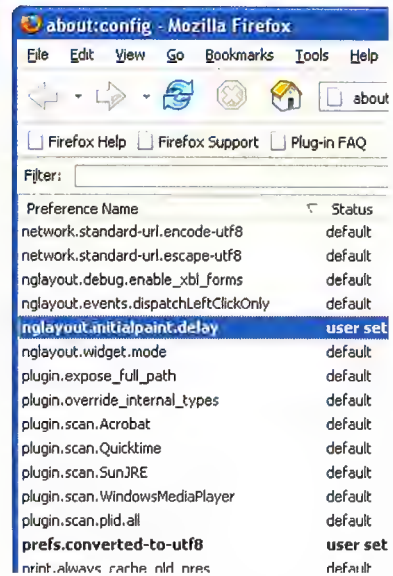
Firefox relies heavily on Profiles. The Profiles folder stores many of the customised settings, which take the form of scripts, that are loaded each time Firefox is launched.

If you already have Firefox installed you will find your profiles stored in a path which should be similar to 'C:\Documents and Settings\[User Name]\Application Data\Mozilla\Firefox\Profiles\'.
The quickest way to find the proper location is to type %appdata% from the Run box. This will take you to the

Application Data settings for the particular user profile currently logged in.

For Linux users, it will probably be found at ~/.mozilla/default/. The important thing to remember here, both for Windows and Linux users is that Firefox works with multiple profiles, so make sure you are working in the profile of the user you are wishing to customise.

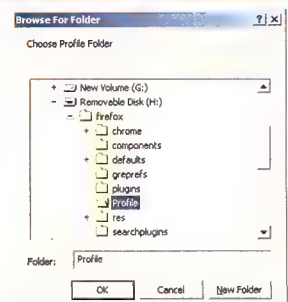
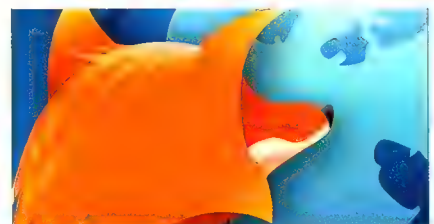
RIGHT: Firefox is reliant on Profiles, so head for the customised settings.



A note on initialpaint

There is some debate as to the best setting for *nglayout.initialpaint.delay*. The default is 250, and while some would argue that a value of 0 or 1 is better others still say it shouldn't be less than 100000.

The reason this setting is subjective is that it deals with the delay between receiving content and displaying it in the browser. As most people are already reading the content of a page before it is completely loaded, it can often 'feel' like the page has loaded quicker than it actually has. A value of 0 means that the page starts rendering the moment it starts receiving content. The higher the value, the more data that is received before the page starts displaying. So instead of the page being 'built' before your eyes as it downloads, a higher value will render more content concurrently. Feel free to toy around with higher or lower values. Bear in mind that results will differ for various connections.



Universal Serial Bus

Want a portable already configured browser wherever you go? No problem – here's how to install Firefox on a USB key for portable browsing goodness.

1. Start by downloading the installer-free version for your platform from ftp.mozilla.org/pub/mozilla.org/firefox/releases. For Windows grab the 'Firefox-win32-[version].zip', for Linux 'firefox-[version]-i686-linux-gtk2+xtt.tar.gz'.

2. Extract the files into a new local folder on your hard drive called 'Firefox'.

3. Now we need to create our own Profile folder. It doesn't exist by default and isn't created until you actually install then launch Firefox and import your settings. We don't want to do that at this point, so create a new 'Profiles' directory in the root of the Firefox folder.

4. We also need to create a batch file which launches the Firefox executable with a switch to load the profile manager. So with your favourite text editor create a new file and type in:

```
firefox.exe -ProfileManager
```

Save the file as

```
start.bat
```

into the folder which contains 'firefox.exe'.

5. Now copy the contents of the 'Firefox' folder to your USB drive and run start.bat.

6. The Profile Manager should appear, and you can create your first Profile. Make sure that when creating your new profile you change the folder to reflect the path on your USB drive to the Profile folder you created.

7. Close the Profile Manager, then re-run start.bat. This time you can select the new profile and start Firefox.

Assuming you followed everything here; Firefox is now running from your USB drive. Any changes you make to the settings, any bookmarks, even the browser's cache, will be written to the USB drive, and importantly, to the profile you have created.

Note it's important to remember that Firefox be launched either from a script or batch file. If you try and launch it from a shortcut, you are going to run into a whole lot of grief with relative file paths and the like. You can still create an 'autorun.inf' if you want Firefox to load automatically when you insert the USB key, but just make sure that it loads start.bat, and not the 'firefox.exe'.



Although Firefox blocks most pop-ups, some websites often open new browser windows with standard browser features removed. Don't you hate that? The following settings, if entered, will allow us to take back some control:

```
// Stop Javascript from resizing the browser
user_pref("dom.disable_window_move_resize", true);
// Stop the Close button from being disabled
user_pref("dom.disable_window_open_feature.close", true);
// Stop the Menu bar from being disabled
user_pref("dom.disable_window_open_feature.menubar", true);
// Stop the Bookmarks Toolbar from being disabled
user_pref("dom.disable_window_open_feature.personalbar", true);
// Stop navigation bar from being disabled
user_pref("dom.disable_window_open_feature.location", true);
// Stop 'Minimise' from being disabled
user_pref("dom.disable_window_open_feature.minimizable", true);
// Resisable pop-up windows
user_pref("dom.disable_window_open_feature.resizable", true);
// Stop scrollbar being disabled
user_pref("dom.disable_window_open_feature.scrollbars", true);
// Stop Status bar from being disabled
user_pref("dom.disable_window_open_feature.status", true);
// Stop Title bar from being disabled
user_pref("dom.disable_window_open_feature.titlebar", true);
// Stop Javascript from hiding toolbar in new windows?
user_pref("dom.disable_window_open_feature.toolbar", true);
// Stop Javascript from changing status bar text
user_pref("dom.disable_window_status_change", true);
// Stop Javascript from changing window focus
user_pref("dom.disable_window_flip", true);
```

For more on configuring 'user.js' check out the Mozillazine forums and Mozilla's own tweak pages at www.mozilla.org/unix/customizing.html.

Handy keys

Even if you're a mouse jockey don't forget Firefox has some quick and handy short cut keys to accelerate your browsing experience. All of the following work in combination with the CTRL key:

BOpen sidebar for bookmarks
DBookmark current page
HOpen sidebar for URL history
LChange focus to Address Bar
NOpen new browser window
OOpen local file
TOpen new tab
UShow page source code
WClose open tab or if no tab, closes browser window
TabScrolls through tabs
1..0Change from tab1 through to 10

04 Keeping the user content

The 'usercontent.css' file, which once again does not exist by default, manages the way webcontent behaves. It also sits in the 'chrome' folder under your profile. Here are some examples for your convenience:

```
// Add the following code to make the mouser cursor change
// into a crosshair for links that open a new window
:link[target="blank"], :visited[target="blank"] {
:link[target="new"], :visited[target="new"] {
    cursor: crosshair;
}
// We can also change the cursor if the link will activate Javascript commands
// Change cursor for JavaScript links
a[href*=javascript:] {
    cursor: move;
}
// Get rid of the marquee tag like this:
marquee {
    -moz-binding : none !important;
    display : block;
    height : auto !important;
}
```

Naturally there's much more you can do to tailor Firefox to your liking. As a browser it's fast, configurable, and feature rich – but like overclocking and Windows tweaking, you can always squeeze a little more performance and power by playing around with its configuration yourself. Happy tweaking!



[GREAT GAMES]

EVEN BETTER PRICE!

LOADS MORE NEW TITLES ►►



NOW YOURS TO OWN 23 SEPTEMBER!



1
PC USER
TOP BUY
10/10

"... PICK UP A CLASSIC OR TWO FOR LESS THAN \$20. VIVENDI UNIVERSAL'S BEST SELLER SERIES IS A PRIME EXAMPLE OF THIS..."

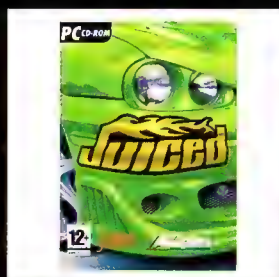
UNDER \$20



© Vivendi Universal Games logo are trademarks of Vivendi Universal Games Inc. ® designates trademarks registered in the U.S.A. which may be registered in certain other countries. All other trademarks are the property of their respective owners. Prices may vary from retailer to retailer. All information subject to change without notice.

Competitions

You can only enter once per competition or you'll be disqualified. You must provide a postal address and phone number for prize delivery when you enter (not a PO Box).



10 x Juiced for PC

Dreaming of a hot rod barely road worthy and don't have the coins to make it real? Then Juiced is the game for you! Create your own racing monster in a game that oozes attitude. Sporting 49 cars and hundreds of parts you can modify for style, speed and handling. Juiced provides authentic physics and damage; the ability to build custom racing crews and you can even play head-to-head online. Join the race and send in your entries, thanks to Akaim we have 10 copies to give away!

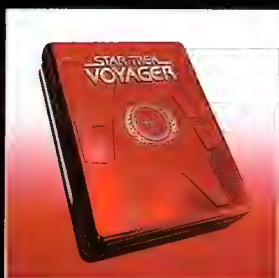
Q What year was Akaim founded?



5 x Men of Valor PC

From Medal of Honor: Allied Assault to Men of Valor, developer 2015 continues to work their magic in one of the most historically accurate first person shooter games ever made. Based on the Vietnam war, Marine Dean Sheppard will take you on a journey so cinematic you'll think you're in the jungle with the troops. Drive boats, fly helicopters and go on search and destroy missions as you build relationships with your squad through this brilliantly scripted, power packed challenge. We have five tickets to experience life on the battlefield so get your entries in fast to be one of the lucky winners.

Q What city in Oklahoma was 2015 founded in?



3 x Star Trek: Voyager Season 3 DVDs

Escape the boredom of your dull 20th century lives and explore the galaxy with Star Trek: Voyager season 3 DVD set! Take a trip down memory lane with Tuvok in 'Flashback', see how the crew become a part of modern day Los Angeles in 'Future's End' and learn what really happened to the dinosaurs in 'Distant Origine'. Join the team as they explore the depths of the Delta Quadrant with almost 26 hours of trecky adventure and excitement! We have three of these sets to give away thanks to Paramount so beam those entries in!

Q What did a 1993 study from Purdue University find in relation to children and Star Trek?



2 x ZoneAlarm 5 Pro from Zone Labs

Attacks on the PC are becoming harder to beat, hackers are getting smarter and viruses more lethal. We all want to remain one step ahead of the enemy and with the ZoneAlarm 5 Pro it's just become a lot easier! Offering firewall, identity, and privacy protection along with essential email security, Zone Labs has created the chastity belt of the PC world. Save your computer from trojans and deny hackers their fun by sending in your entry fast – we have two of these PC protectors to give away. Winners also receive 12 months of software updates and free online support!

Q Which surfaced first, the Melissa Macro virus or the Love You Letter virus and in what year?

EMAIL ENTRIES TO WIN@ATOMICMPC.COM.AU OR POST THEM TO: ATOMIC, PO BOX 2286, STRAWBERRY HILLS NSW 2012. PLEASE SEND A SEPARATE ENTRY FOR EACH COMPETITION. PLEASE ENSURE THE COMPETITION NAME IS THE SUBJECT OF THE EMAIL, OR IS DISPLAYED CLEARLY ON THE FRONT OF THE ENVELOPE. THE CLOSING DATE FOR ENTRIES IS 18 OCTOBER 2004. WINNERS WILL BE ANNOUNCED IN ATOMIC 47.

Atomic 43 winners: Philips Micro Audio Jukebox Q. What was the name of the project that eventually gave birth to the MP3? A. EUREKA project EU147, Digital Audio Broadcasting (DAB). L. Fleming, Stirling, SA. 5 x Rise of Nations: Throne and Patriots expansion sets Q. How long did the 1941 siege of Leningrad last? A. 900 days. N. Trotter, Toowoomba, Qld; C. Vergona, Frankston, Vic; M. Shannon, Highfields, Qld; R. Hough, Quakers Hill, NSW; R. Colombi, Bondi Junction, NSW. 3 x Star Trek: Voyager Season 2 DVD set. Q. In what episode does Q make his first appearance in Voyager? A. Death Wish. T. Lai, Queenscliff, NSW; P. Benda, Coburg, Vic; M. Palimaka, Lara, Vic. 5 x Ground Control 2 and Making of DVD Sets Q. Name the three factions in Ground Control 2? A. NSA, Terran and Viron. J. Phua, Maryland, NSW; G. Eberle, Newtown, NSW; C. Taylor, Noble Park, Vic; A. Kola, Carlingford, NSW; S. Berry, Bondi Beach, NSW.

Terms and Conditions of Entry. 1. The promoter is AJB Publishing Pty Ltd (ACN 083 063 914) of Unit 3/44-70 Rosehill Street, Redfern NSW 2012. Promotion period is from 9.00am on 16.09.04 until 12.00pm on 19.10.04. 2. Entry is open to residents of Australia and New Zealand. Management and employees of AJB Publishing Pty Ltd and their immediate families, and any advertising, marketing or promotional firms associated with this promotion are not eligible to enter. 3. Enter by posting or emailing forms to AJB Publishing Pty Ltd. 4. The draw will be held at the offices of AJB Publishing Pty Ltd at 5.00pm on 19.10.04. Winners will be notified by mail and published in Atomic 47. The prizes are not transferable or exchangeable. 6. The judges' decision is final and no correspondence will be entered into. 7. The promoter reserves the right to publish the winner's name and suburb for promotional purposes. 8. All entries will become the property of AJB Publishing Pty Ltd.

BEST SELLER WORLDWIDE!

CAPTURE YOUR MEMORIES, KEEP THEM FOREVER

Guide 1/2004 \$14.95 inc GST

NEW!

FROM THE PUBLISHERS OF:

PC

AUTHORITY

THE INSTANT EXPERT GUIDE

VIDEO & DVD editing burning

**FREE MOVIE
MAKING
SOFTWARE
WORTH \$200**

Sonic MyDVD for CD 5

The complete solution to easily capture video, add slide shows and burn in a snap.

**22 of the best
CD/DVD and
video tools:**

- PLUS** 3 full programs
- DeepBurner 1.0
 - CD-Burner XP Pro
 - VCDeasy 1.1 5.2

**EXCLUSIVE
ON CD!**

Full version of Sonic MyDVD for CD 5* - the complete video burning software

**EXCLUSIVE TO
NEWSPAPER**

AUSTRALIAN EDITION ON SALE NOW!



YES! I would love to subscribe to *Atomic* magazine!

subatomic

To enter the competition:

Describe in **25 words or less** how subscribing to *Atomic* will make your life more wonderful.

Australia

- ☐ 1 year (12 issues) \$59 SAVE 30% off the newsstand price
- ☐ 2 years (24 issues) \$95 SAVE 43% off the newsstand price
- ☐ 6 month continuous* \$29.50 SAVE 30% off the newsstand price

*Please debit my credit card \$29.50 now and \$29.50 in six months' time and every six months thereafter. To ensure I receive uninterrupted delivery of *Atomic* magazine, please renew my subscription each period upon expiration at the same fee unless otherwise agreed. Unless I cancel my subscription, I understand that it will continue and the account nominated will be automatically billed (Australian residents only).

New Zealand

- ☐ 1 year (12 issues) NZ\$71 SAVE 34% off the newsstand price
- ☐ 2 years (24 issues) NZ\$115 SAVE 46% off the newsstand price

For international pricing go to www.atomicmpc.com.au/subscribe.asp

Payment details

✓ Please tick method of payment

Cheque/Money order

Australia – Make payable to *Atomic* magazine and post with this coupon to: AJB Publishing Subscriptions Department, Reply Paid 479, North Sydney, NSW 2059 or fax (credit card only) to (02) 9492 7310.

NZ – Make cheque payable to Mercury Solutions and post with this coupon to: Mercury Solutions, PO Box 24 013, Royal Oak, Auckland.

or fax (credit card only) to (09) 625 3006.

• Please allow up to 4 – 6 weeks for your first issue of *Atomic*.

Bankcard MasterCard Visa AMEX

Expiry Date: /

Card No:

Cardholder's name:

Signature: _____ Date: _____

☐ Please tick here if you do not wish to receive future promotional information

Personal details

Email: _____

Mr/Mrs/Miss/Ms _____

Surname: _____

First name: _____

Company name: _____

Position: _____

Address: _____

Suburb: _____ State: _____ Postcode: _____

Country: _____

Phone: () Fax: ()

To order online please visit:
www.atomicmpc.com.au/subscribe.asp

C1/ADCT04

Current subscribers prize



You need to be a current *Atomic* subscriber on 20 October 2004.

Best people in the world are current subscribers.

Sports on computer! By far the best invention ever – tied with the Disc Stakka, of course – for the simple fact that you can play your favourite game without leaving the comfort of your plush leather study chair. And if leather isn't enough to entice you, then maybe the knowledge that we're giving four EA Sports prize packs away, for nothing, will keep you glued to your seat. Well, glued until your next copy of *Atomic* arrives, and then we'd prefer it if you went to retrieve your prize.

To nab yourself one of these amazing triple packs, containing Tiger Woods USA Tour, FIFA and Rugby games, all you need to do, is be a current subscriber. That's it. If you're signed up, paid up and lazing the days away with *Atomic*, an EA Sports Triple Pack could be on its way to you. Marvellous!

Why subscribe?

- ☒ **Cheap *Atomic*! Preserve your pennies for other mondo-cool gear.**
- ☒ **Door-delivered *Atomic* techy goodness! Never leave the house again.**
- ☒ **Get *Atomic*! It is, by far, the best tangible entity in existence.**

***Atomic* 43 winners:**

BenQ FP2091 LCD Monitor winner: T Wills, Emerald QLD
XIRO MP-302 winner: B Chapman, Arrowtown New Zealand.

Terms and conditions: 1. Information on how to enter and receive the promoted prize form part of these Conditions of Entry. 2. Entry is open to all residents of Australia and New Zealand who subscribe/renew with this offer between 16.09.04 to 20.10.04. To have a valid entry in current subscribers competition you must have a current paid subscription on the 20.10.04. 3. The draw will be held at the offices of AJB at 5pm on the 20.10.04. 4. The prizes are not transferable or exchangeable and cannot be taken as cash. The judge's decision is final and no correspondence will be entered into. 5. The Promoter reserves the right to verify the validity of each entry. 6. Please allow up to 30 days for delivery of all advertised prizes after the end of the promotion. 7. The Promoter accepts no

DON'T CUT IT! PHOTOCOPY IT!



Subscribe now

Great Staks!



CDs, truly, are wondrous – they make excellent frisbees, coasters and sequins, not to mention fantastic data storage media – if you like that sort of thing. Sometimes though, CDs can be hard to organise, especially if you have so many you could build your own castle out of optical discs, complete with murder holes and poop deck (if it was a ship castle, which we hear are becoming more common these days).

As far as the organising thing goes, we can help. In our hot little hands are seven – yes, *seven* – Imation Disc Stakka units that we want to give away to seven lucky subscribers. All you need to do is subscribe this month and you can be in the draw – and why wouldn't you want to subscribe? In addition to winning stuff, which happens every month, you get almost half off the cover price for every issue, and we deliver right to your door.

Nothing has ever sounded more splendid!

\$1400 worth of Imation Disc Stakkas to give away!

Organise your growing collection of data and music CDs

100-disc capacity per unit; supports up to four additional units without extra cabling or power

Intelligent software to search and catalog your collection

Password protection, 12 month warranty and a clean computer desk!



 **Subscribe online!**

www.atomicmpc.com.au/subscribe.asp

responsibility for any variation in any prize value. 8. No responsibility is accepted for late, lost or misdirected entries. 9. The Promoter is not responsible for any incorrect or inaccurate information, either caused by website users or by any of the equipment or programming associated with or made use of in this offer, or by any technical error that may occur in the course of the administration of this promotion. The Promoter assumes no responsibility for any error, omission, interruption, deletion, defect, delay in operation or transmission, communications line failure, theft or destruction or unauthorised access to or alteration of entries. 10. Any costs associated with accessing www.atomicmpc.com website is the entrant's responsibility and is dependent on the internet service provider used. 11. The Promoter is not responsible for any contact details entered incorrectly on www.atomicmpc.com website. 12. The Promoter collects entrants' personal information in order to conduct the promotion. If the information requested is not provided, the entrant may be considered ineligible for the prize. 13. By entering the promotion, unless otherwise advised, each entrant also agrees that the Promoter may use this information, or disclose it to other organisations that may use it, in any media for future promotional, marketing and publicity purposes without any further reference, payment or other compensation to the entrant. A request to access, update or correct any information should be directed to the Promoter at their address set out below. 14. The Promoter is AJB Publishing of Suite 3, 44-70 Rosehill Street, Redfern, NSW 2016. A.B.N. 76 951 889 503.



Thermaltake Coolall Your Life

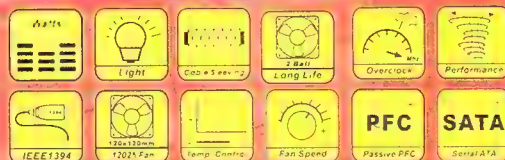


Coolall Your Life

Purepower

TWV-480

Total Watts Viewer



View your total system power consumption through the unique features of the new TWV-480 from Thermaltake

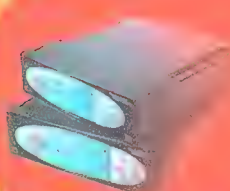


- Power consumption display module fits into 5.25" drive bay
- 480 watt power supply available with or without PFC
- Application for AMD™ and Intel® system including Pentium 4
- Feel the change of power consumption while the system works under different load conditions
- Get real control of your system by reading the values reflected by TWV
- Take fast action and necessary measures while the system is working abnormally
- 80x80x25mm case fan, adjustable fan speed, 1300 rpm ~ 3000 rpm.
- Enclosed 20-24pin adaptor cable application for BTX & server motherboard
- Dual serial ATA (Advanced Technology Attachment) power connectors
- Noise : 17 dBA at 1300 rpm

SILENT TOWER



HARDCANO 12



LANMOTO CASES



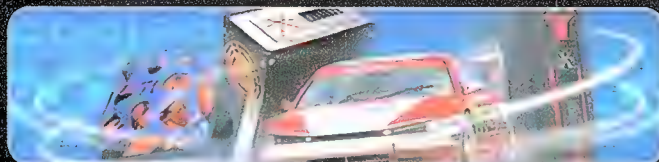
Thermaltake Australia and New Zealand

Unit 1/49 Henderson Rd, Rowville VIC 3178

Phone: +613 9763 1622 Fax: +613 9763 1677

Website: www.thermaltake.com.au

E-mail: sales@thermaltake.com.au



Lost in Translation



材质: PVA SPONE+天然纤维

- 特性:
- 其蜂巢式通孔, 能在卸妆时将残留在毛孔内的化妆品及皮肤分泌的脂肪等轻易地清除干净, 让您倍感清新。
 - 触感舒适, 亲水性强, 易拿易洗, 可完全替代毛巾。
 - 无毒型气泡, 低化学性, 弱中性, 绝不伤肤。
 - 使用后清水擦干, 直立通风, 可完全干燥并硬化, 使细菌无法滋生, 卫生耐用。
 - 使用期, 请在温水中轻轻揉洗, 使其恢复最佳效果。

Material: PVA SPONE+natural fibre.

- Feature:
- With its beehive type structure, it can clean away the cosmetic stay in your pore and the fat secreted by your skin that make you fresh feeling.
 - With comfortable touch feeling and strong hygroscopy and easy to take and wash, it can take place of the towel.
 - Seewheed bubble, with low chemistry and pure neutral, it would never hurt the skin.
 - After use, crash out the water and place it upstraight to air and dry that the germ cannot breed. It is health and durable.
 - Before use, rub and wash it gently in the warm water to return it to the optimum effect.

月芳有限公司荣誉出品

Honor manufactured by Yuefang Co., Ltd.

Welcome to Lost In Translation, the section dedicated to the wierd and wonderful world of language mangling and the linguistic oddities we come across every day. All of these are genuine, and are presented in the spirit of friendly amusement. If you find something whacky and wonderful in your travels, in a manual, or on a box send it through to wtf@atomicmpc.com.au

All New Original Design...

Model:0408SL-BS

Case Type:Middle Tower Case

Dimension(H*W*D):430 x 200 x 440mm

Drive Bays:External 4 x 5.25", 2 x 3.5" Internal 6 x 3.5"

Motherboards Micro ATX, Standard ATX

USB & 1394 firewire:Dual USB2.0, IEEE1394 Firewire, audio & speaker ports



The appearance some result of silver & can match the modelling top cover.



Super cool engine turbine blade, The blade can be rotated thereupon while starting.

GQ300 Digital Language Learner

Size: 110 mm x 20 mm x 70 mm

LCD: Graphic FSTN, 240 x 160 dots, 2 bit greyscale.

Power: AA batteries x 2 can play 8 - 10 hours

USB transmission: 300KB / Sec

Capacity: on board 64MB flash memory; can extend the Smart Media Card from 16MB to 128MB

Can read the text while you listening the language lessons

Longest voice recording time, 64MB flash memory for 45 hours, 128MB for 90 hours.

KTV Practicing: Show the lyrics while you are listening MP3.

MP3 Player: Can adjust Equalizer (Normal, Pop, Classical, Jazz, Rock) to suit your taste.

DVR, follow & repeat reading, A-B loop, language learning function.

8000

DupRay

DupRay

The beam moving on the front panel helps you determine the recording gradation of the DVD writer with ease.

So you don't you have to keep your eyes glued to the monitor and frequently check the percentage indicator.

There's a mini equalizer-like screen which displays "Magical Beam" images when the DVD writer is playing music or on stand-by mode. It simply puts more fun in your work.

Fe



wtf@atomicmpc.com.au



Tooled up

Maurice 'Moz' Ford muses over the transcendent nature of one's tool.

It's said that you can tell a man by the cut of his suit and a woman by the contents of her handbag. But you can tell an Atomican by the size of his toolkit.

Your standard techie wannabe has a formidable array of devices tucked away in that *Dick Smith Fix-it Kit* that he totes everywhere. But the Atomican? Here is someone who defines himself as beyond 133t. And why not? 133t is old hat. Last week. A 486SX with EDO RAM. Check his toolbox and you'll be amazed. Not at what's in it, but at what *isn't*.

These days, PC case design is not the only thing that now hedges towards a 'smaller is better' approach. A *real* Atomican doesn't need lots of fancy tools. He makes his own. His skill is so great that he fashions the instruments he desires from any manner of item left lying around.

MacGyver? He's a wimp. Sure, he can escape from a South American drug dealer's prison using nothing but a cotton bud, but can he fix a PC without tools? Not a chance. The Atomican however – no probs, just get him a hairbrush, some shoe polish and a spoon full of red jelly crystals and he'll have that baby patched up and purring before you can say 'What the...?'

You can argue till your heatsinks fall off that the more complex things become, the more specialised the tools needed to fix them. But no matter how many dedicated tools you have, you'll end up getting into a bind that none of

your fancy, expensive gadgets can get you out of. Most people simply don't realise that despite the best engineering efforts, technology can't create the perfect tool for the job.

But as Atomicans we have overcome this. I was at a LAN once and observed an emergency BIOS chip swap to save a mobo after a bogus flash – a tense and tricky situation at the best of times. The people? Atomic Tech Forum Heroes. The outcome? Success. The tools? A knife, some Blu-Tac and a length of mint flavoured dental floss. I jest you not.

How can you become one of these new breed of Tech Heroes? The path to enlightenment is a long one. You must cast aside all your preconceptions. Think outside the square and beyond the circle that encloses it. Open your mind to the wonders of the plethora of unappreciated household items that would otherwise suffer a forgotten fate, stuffed under the cushions on your sofa.

Don't believe that bald-headed kid. There is a spoon – and in the right hands it can be the perfect implement for removing excess thermal paste or unjamming the fan in your power supply (with the power disconnected, *of course*). You are only limited by your imagination.

The enlightened Atomican must transcend all thought of material manipulation and realise the truth – that to be technically *Atomic*, you do not *use* the tool, you *are* the tool.

I know I am!

atomican

While the Greek Olympics were monopolising world attention, *Atomic's* online community was busy hosting its own *Geek Olympics*.

The first games of the modding olympiad began with a traditional torch relay. In a novel twist, the torch was carried by noobs who hadn't read the FAQ... as they had prior experience in being flamed.

The spectacular Opening Ceremony featured hordes of Atomicans creating realtime fractal artworks through choreography. Sadly, it came unstuck when some participants mistakenly used Pi to only five decimal places, creating on-field jostling and an unsettling tableau reminiscent of a bump map from *Resident Evil*.

However, spectators quickly put this disappointment behind them as the Hack and Field events got underway. Sellout crowds thrilled to the Spammer Throw, Javaline, Discuss and Arithmetic Gymnastics. Unfortunately, the *Geek Olympics* also had their share of controversy...

Most womens' event winners were disqualified when post-event IP testing found they were actually young males. Persistent rumours of performance-enhancing drug use were confirmed when empty cans of Jolt Cola were discovered in the athletes' village. And the TryAthlon ended in disarray when the competitors went back to using Pentiums.

However, these setbacks were largely forgotten by the conclusion of the Games and the *Doom 3* marathon. Few will forget the magic of Thoran's triumphant entry to the stadium, a tickertape storm of unusable Half Life 2 vouchers raining down upon him.

Virt, with thanks to the many who contributed their *Geek Olympic* ideas.



POTM 45

For a few days in August, we were seriously contemplating renaming the PC Games forums the *Doom 3* forums. At one point we counted 37 *Doom 3* threads on the PC Games forum page. But in the midst of it all, stood a post by Refuse/Resist which caught our eye: www.atomicmpc.com.au/forums.asp?s=3&c=12&t=5538

About half way down the page. And it's POTM! Yay Refuse/Resist – we hope you enjoy using your spanky new Logitech MX510 mouse!

Crashtest #18 - "The Truth"

COUNTERSTRIKE:SOURCE

SAME SHIT : DIFFERENT ENGINE



PROUDLY BROUGHT TO YOU BY
"OH GOD, WHY ISN'T IT DEAD
YET?" GAMES

Written & Illustrated by Craig Simms. © Copyright 2004 Atomic: Maximum Power Computing



Bet you still ain't playing your favorite PC game the way it was meant to be played!

Get yourself PowerColor's latest X800XT Graphics Board and play today's PC games the way they were meant to be played.

PowerColor X800 XT GameFX Board Series



atomic
MAXIMUM POWER COMPUTING
Video card manufacturer
ReaderAwards2003
WINNER!

If you're playing your favorite PC game without a PowerColor X800XT Graphics Board, chances are you aren't experiencing all of the visual excitement designed into the game. Why? Only the PowerColor X800XT Graphics Board delivers the pixel shading prowess and 3D graphics performance in today's newest games. Unleash the Gaming Power in Your PC with PowerColor.

PowerColor

SW

Emagen 1300 880 070
I-Tech 1800 833 883
Techbuy 02 9648 1818

QLD

Atomic Gaming 07 5479 0499
Below-0 07 3348 2155
Concorde PC 07 3347 1777

C

CPL 03 8542 8688
i-MART 03 9696 8918
Scorptec 1300 726 770
Sky High Computers 03 9850 1080

WA

J.H. Computers 08 9367 9499
Simline Solutions 08 9446 3423

SA

Compuzone 08 8362 8288



Australia IT
Tel: 1300 668 715 (VIC & NSW only)
(03) 9543 5855
<http://www.australiait.com.au>

The 3rd Eye...



- Monitor critical system information
- System temperatures, voltages and fan speeds
- On-the-fly overclocking
- Email and MSN notification
- Zero CPU Utilisation
- System power on/off
- Available with ABIT AV8, AG8 and AA8-DuraMAX!

...see what others can't



ABIT's legendary reputation for innovation in the enthusiast PC market has reached new heights, with the release of the new **3rd Eye**. Utilising ABIT's **pGuru** technology, the **3rd Eye** allows you to effortlessly monitor and make active adjustments on such vital system statistics and settings as CPU frequency, preset overclocking levels, fan speeds and hardware voltages - via a remote LCD display, without any interruption to your programs! **3rd Eye** can even alert you of incoming emails and MSN messages!

ABIT's 3rd Eye is available with all ABIT AA8-DuraMAX, AG8 and AV8 motherboards.

ABIT
www.abit.com.tw



Australia / NZ Exclusive Distributor:

Sydney
Unit 37, Slough Business Park
Hokier St, Silverwater, NSW 2128
Tel: (02) 9735 5655
Fax: (02) 9735 5656
sales-syd@altech.com.au
www.altech.com.au

Sub-Distributors:
NSW Global Business Technology
(02) 8718 8888
sales@gbt.com.au

Melbourne
Building 3, 13-15 Brough st.
Springvale VIC 3171
Tel: (03) 9558 5090
Fax: (03) 9558 5091
sales-mel@altech.com.au
www.altech.com.au

NT Ikon Systems
(08) 8935 6233
sales@ikon.com.au

Brisbane
64 Hope St.
South Brisbane, QLD 4101
Tel: (07) 3017 2000
Fax: (07) 3017 2020
sales-bne@altech.com.au
www.altech.com.au

NZ Geeks Direct
+64 9 2777 815
www.geeksdirect.co.nz

Premium Resellers:

NSW AusPCMarket
I-Tech Group
ARC Computers
VIC Scorpion Technology
CPL
QLD GameDude
Umart Online
WA PLE Computers
Auslin Computers
TAS Tasmanian Principal Comp.

1800 633 883
(02) 9748 6322
(03) 9551 8066
(03) 8542 8688
(07) 3387 1500
(07) 3369 3928
(08) 9309 4771
(08) 9201 2788
(03) 6234 5677

www.auspcmarket.com.au
www.i-tech.com.au
www.arc.com.au
www.scorpion.com.au
www.cpl.net.au
www.gamedude.com.au
www.umat.com.au
www.ple.com.au
www.austin.net.au
www.tasmanianpc.com.au